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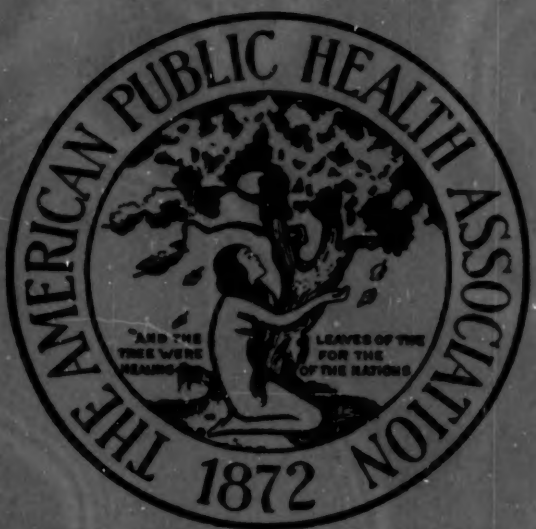

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JULY, 1955

volume 45

number 7

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Butter — Cheese
Edible Oils — Confections
Yellow Bakery Products
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TECHNICAL INFORMATION

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Note that one molecule of beta carotene can be converted into two molecules of vitamin A.

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Appearance: Red-violet platelets

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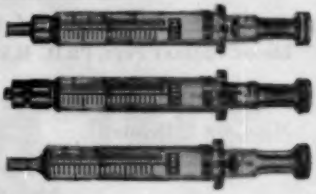

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Official Monthly Publication of the American Public Health Association, Inc.

Volume 45 | July, 1955 | Number 7

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CONTENTS

PAGE

Attitudes of Professional Personnel in the Treatment of the Tuberculosis Patient 849
JULES V. COLEMAN, M.D.

Medical Care Functions of the Detroit Health Department 855
JOSEPH G. MOLNER, M.D., M.P.H., AND VLADO A. GETTING, M.D., DR.P.H.

A Canadian Table of Average Weights for Height, Age, and Sex 862
LIONEL BRADLEY PETT, PH.D., M.D.

Institutional Feeding—A Challenge 869
MARGARET A. DUNHAM

Continued on page vi

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Contents—Continued PAGE

Chemicals and Environmental Health 874
HARVEY F. LUDWIG

Rehabilitation in Workmen's Compensation 880
ALEXANDER P. AITKEN, M.D.

Propagation of Poliomyelitis Virus in Fetal Animals While in Utero . . . 885
FRED W. GALLAGHER, PH.D.

Opportunities in Environmental Sanitation in a University Health Service Program 891
RICHARD G. BOND, M.P.H.

Significant Trends Affecting the Education of Blind Children 898
GEORGIE LEE ABEL

Fiscal Research in Public Health 906
GEORGE JAMES, M.D.; DANIEL KLEPAK; AND HERMAN E. HILLEBOE, M.D.

Relation of the New Respiratory Agents to Acute Respiratory Diseases . . 915
HAROLD S. GINSBERG, M.D.; ELI GOLD, M.D.; WILLIAM S. JORDAN, JR., M.D.; SIDNEY KATZ, M.D.; GEORGE F. BADGER, M.D.; AND JOHN H. DINGLE, M.D.

Anticipated Progress of Yellow Fever in Guatemala and Mexico, 1955–1959 923
COLONEL NORMAN W. ELTON (MC), USA.

EDITORIALS:

Wanted—An Editorial Moses 928
Yellow Fever Again! 929
The Federal Food and Drug Administration and the Public Health . . . 929

Credit Lines 932

Books and Reports 936

Books Received 942

A Selected Public Health Bibliography 944

Association News 947
Meetings of Affiliated Societies. Puerto Rico Association Journal. Eighty-Third Annual Meeting, Kansas City, Mo., November 14–18: Hotel Rates, Hotel and Motel Reservation Forms. Demand Increases for Health Career Materials.

Employment Service 952

News from the Field 954

Conferences and Dates 963

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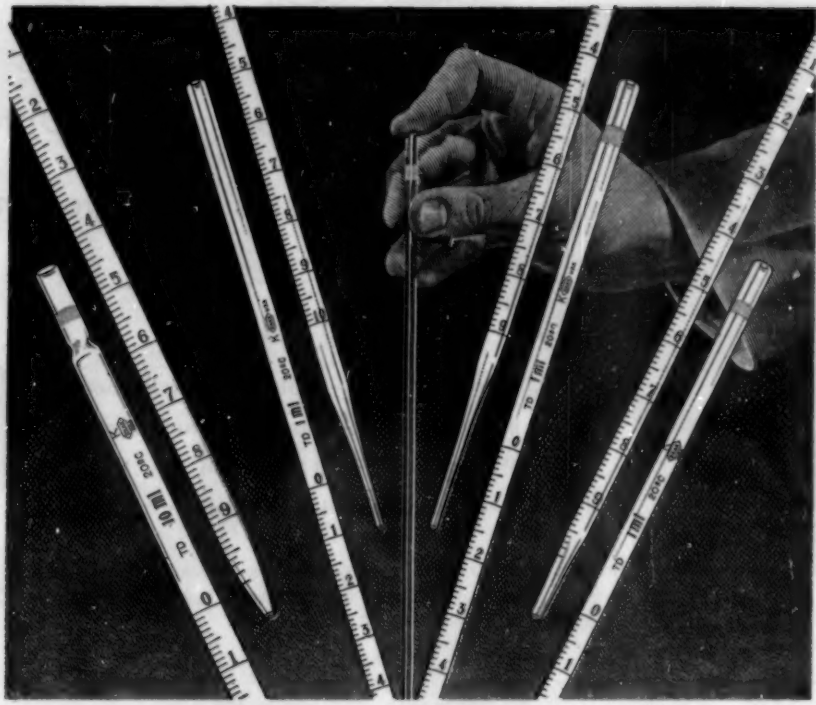

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INDEX TO ADVERTISERS

	Page
American Public Health Association:	
Book Service	XXIV, XXVI, XXVII
Membership Application Blank.	XXV
Sustaining Members	XXII
Angel, H. Reeve (Filter Papers)	XXV
Aquafilter (Walter-Activated Filter)	XV
Ayerst Laboratories (Mysoline)	V
Becton-Dickinson (Vacutainer)	XXXI
Case Laboratories (Tellurite Gylcine Agar)	XXI
Clay-Adams	IX
Coca-Cola	964
Crown Cork & Seal.....	XII
Difco Laboratories (Tissue Culture Reagents)	Back Cover
Directory of Exhibits.....	XXVIII, XXIX
Directory of Health Service.....	XXV
Black & Veatch	
Emerson Venable, P.E.	
Professional Examination Service, A.P.H.A.	
Hoffmann-La Roche, Inc. (Beta Carotene)	II
International Equipment (New International Centrifuge)	XIV
Kimble Glass	VII
Leitz, E., Inc. (Ortholux Microscopes)	XIII
Lily-Tulip Cup Corporation.....	XXIII
MacGregor Instrument Company (VIM Hypodermic Equipment) .	III
Millipore Filter Corporation.....	XXX
Oval Wood Dish Corporation.....	X
Parke, Davis (Dilantin Sodium) ...	XI
Pennsylvania Salt (Free Technical Bulletins)	VIII
Schleicher & Schuell (Membrane Filters)	XVII
Slumberland Products	XXI
Sylvana Chemical (Cardiolipin-Lecithin Antigens)	XVI
Wallace & Tiernan (Chlorination Equipment)	XX
Wallace & Tiernan (Ointment Salundek)	XXI
White Laboratories (Cod Liver Oil)	XVIII
Wyeth, Inc. (Bicillin).....	XIX

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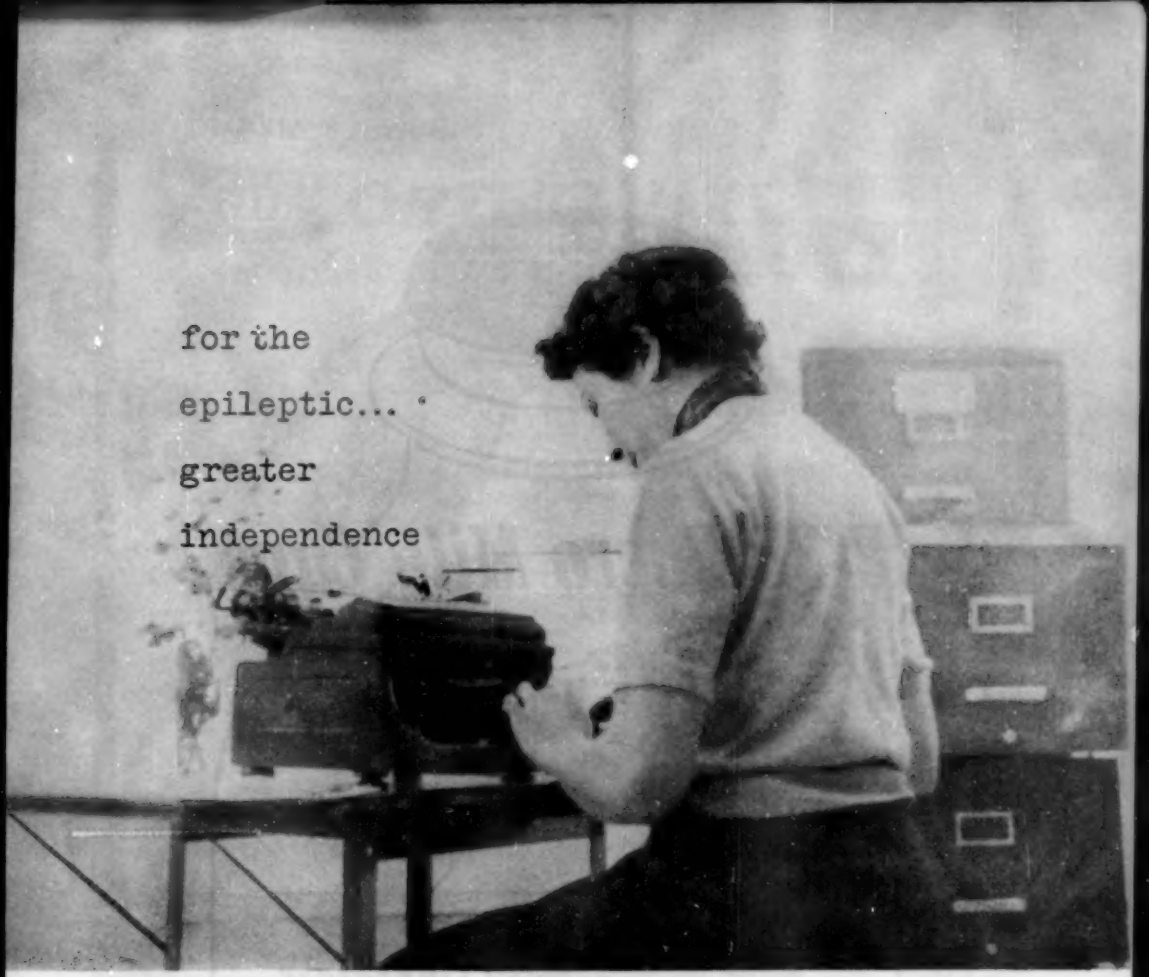

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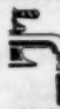

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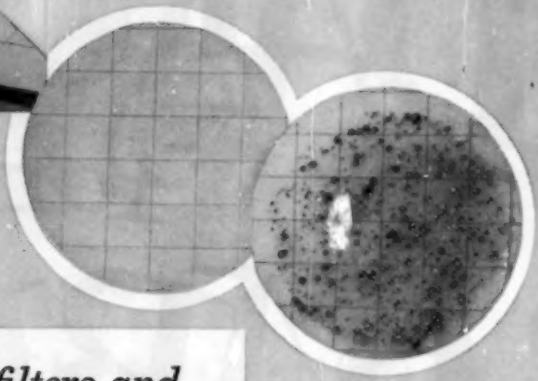

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1. Smith, C. A., and others: Am. J. Syph., Gonor. & Ven. Dis. 38:136 (March) 1954. 2. Council on Pharmacy and Chemistry: New and Nonofficial Remedies. J. B. Lippincott Co., Philadelphia, 1954, p. 148.

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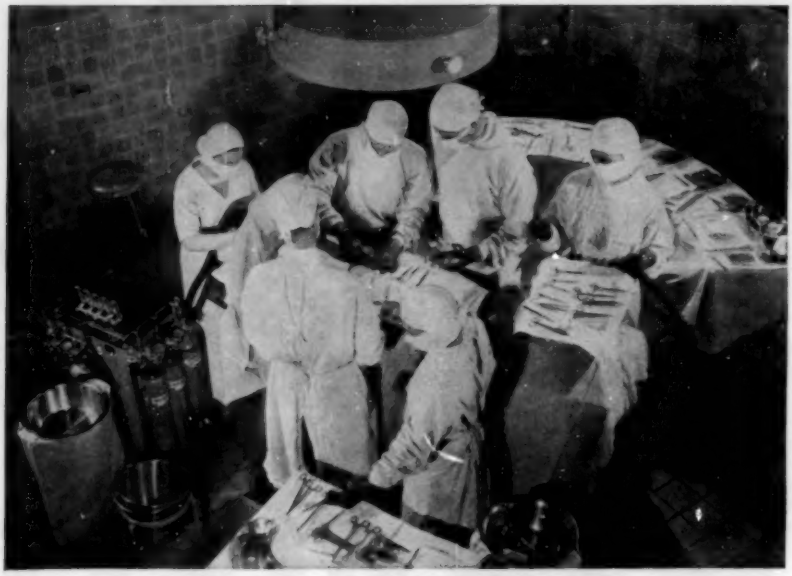

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Official Monthly Publication of the American Public Health Association, Inc.

Volume 45 July, 1955 Number 7

Attitudes of Professional Personnel in the Treatment of the Tuberculosis Patient

JULES V. COLEMAN, M.D.

Though this illuminating consideration of professional worker-chronic patient relationships is directed to the better understanding of the tuberculous patient's needs, the principles apply equally to the care of other chronic sick. Indeed, they will be seen to affect personal relationships to some degree in areas quite apart from medical care.

A patient enters a chronic illness as into a foreign land. He can no longer orient himself by accustomed landmarks; he has given up his own routines of living; and in so far as his usual symbols of communication take on new meanings and new references, he must even learn a new language. The reactions of patients with tuberculosis have been given considerable study. It has been recognized that they are in a sense uprooted people, isolated from their past and current life environments, not only by their infection and by the nature of their sanitarium experience, but as much by their own sense of difference from those with whom they have lived in intimate association. They may have reactions of sensitivity and defensiveness; they may become alert to rejection, fearful of their dependent needs, and angry with the unsympathetic world they project as an image on the screen of their perceptions.

In recent years we have sensed more concretely and imaginatively the plight of the tuberculous patient and have accepted his special needs for understanding and emotional support as a primary condition of response to treatment. For the tuberculous patient illness takes on all kinds of meanings, depending on his personality and his life situation. Many patients seem to react as if their illness were an act of fate or God, a curse, or punishment for some real or imagined misdeed. Such patients may show a compulsive need to allay feelings of guilt and to pay for their "sins" by engaging in activities—for which they always find rationalizations—that tend to defeat their recovery.

There are patients who seem to believe that the illness is a process of in-

Dr. Coleman is clinical professor of psychiatry, Yale University School of Medicine, New Haven, Conn.

This paper was presented at the Annual Conference of the New York Tuberculosis and Health Association, November 10, 1954, in New York, N. Y.

ner contamination and therefore find it difficult to accept the idea that they can have the disease. The emotional syllogism appears to be: Tb is a dirty disease. If I have Tb, I must be dirty or filthy. So I cannot have Tb.

The inability to accept the possibility of having the disease is fairly widespread and may have something to do with the reluctance of many persons to participate in mass x-ray surveys or to enter a sanitarium after the diagnosis is made. Other psychologic factors, however, must play a part in this connection, probably involving ideas of omnipotence and inviolability, and fears of passivity and dependency.

These are some of the infinite variety of patient reactions to the illness. Different problems arise at every phase in the course of the disease. The initial reactions of the patient on learning the diagnosis may be dramatic and traumatic, a mixture of incredulousness, consternation, bewilderment, and denial. He is flooded with thoughts of what he must give up, the economic and personal problems he and his family must begin to face, and the vague fears of social stigmatization which have by no means entirely disappeared. If he is married, there are fears for his wife and children. If, as with many new patients, he is still preparing for a career, he is bedeviled by fears of recurrent or permanent handicap.

In the long, drawn-out course of his illness, he is troubled by many personal problems of his own and of his family. Separated from his family, either in fact—if he goes to a sanitarium—or by the many subtle and overt disruptions imposed by his illness if he remains at home, the patient inevitably makes a far-reaching emotional investment in the professional people who care for him. They become as important to him in many ways as members of his family and his close circle of friends. He is dependent on them not only for health but for emotional sustenance, and in the long run even for the way of life that the limitations of his illness will permit.

Attitudes of professional workers are partly determined by the popular view of the physician and his associates in the samaritan role. The patient expects the physician to be kindly, benevolent, disinterested, and professionally skillful. He reacts with disappointment and rejection to any deviation on the part of the physician from this role image. He also will tend to react to such disappointments with anxiety and with the stirring up of neurotic potentials in his personality.

In dealing with a patient in his own home it will be of interest and importance to understand him as an individual and to be aware of his family situation and his social relationships. The patient in a tuberculosis hospital or sanitarium also needs to be understood in the same way but, in addition, one would want to know the effects upon the patient of institutional living. An institution is a special form of social organization, and while various institutions do have their own individuality, determined largely by the personalities of the successive directors, they all have certain features in common. The life of the institution imposes itself upon the life of each patient. The effect upon the course of the illness is negligible where the patient is a fairly mature person, or where the passive, dependent aspects of the personality make it possible for the patient to conform submissively to the particular demands of the institution. But with patients who are subject to conflict about authority—the restless, embittered, defiant people who feel life has cheated them—the routine of the institution offers a challenge for revolt which may take many forms.

As a case in point one might consider the problem of bed rest. It has not always been regarded as the cornerstone of the treatment of tuberculosis. You

may recall that in Thomas Mann's novel, "The Magic Mountain," bed rest was used only for the feverish patient, and then only for the period of fever. Mann makes it very clear, incidentally, that the fevers of his main character, Hans Castorp, were emotional and spiritual as well as corporeal, and basically of course the interest of the novelist is to portray a society in organic decay. Be that as it may, the patient in the novel had numerous outlets for the expression of tensions and anxieties which are inconceivable for our patient today.

On the other hand, we know very well that when we talk of bed rest we have actually no way of evaluating its meaning for the individual patient. For many patients bed rest means remaining quietly on one's back so long as nobody on the staff is looking. Furthermore, even when the patient does comply faithfully with the requirements of bed rest, we still have no way of evaluating its effectiveness with any reality measure, as long as we are unable to estimate energy utilization at so-called rest. There are patients whose autonomic activity maintains a high level at all times, and we have no useful method at present of evaluating differences in tension expenditures.

Why do so many patients seem to find it difficult to maintain bed rest, even after they have been told with great emphasis that it is of the greatest importance in their cure? It would almost seem as if they were deliberately inviting danger to themselves by their activity. It might seem that their need for independence was so great that they simply could not accept the submissive dependency of curing on bed rest. Or that they were driven by the restlessness of anxiety. We know that there are people with chronic anxiety tension states which they can control only by continuous motor activity. However, for the most part, these are probably people for whom being dependent, accepting care in a passive, compliant manner, constitutes a threat to their feelings of integrity.

Institutional living tends to enhance the dual conflicts of dependency and hostility. It is the type of conflict situation that we encounter in adolescents who stand at the threshold between childhood and adulthood. But it is in this case an artificially created situation, in which the dependency is fostered by the nature of the illness and its methods of cure, and the hostility is a reaction to the frustrations, petty inconveniences, often senseless arbitrary thoughtlessness of institutional routine.

There are many ways of accepting dependency and of expressing hostility, and both may go on at the same time. For example, there is the young girl who spent her first year in the hospital sleeping 20 hours a day. She seemed to be accepting dependency completely, doing exactly as she was told, but at the same time she built a wall around herself, so that nothing could touch her, shutting out other patients and staff as well. Another extremely compliant patient was also unable to talk about herself and her feelings, but got rid of some of her tensions in the form of attacks of mucous colitis. Another young woman prided herself on being good and keeping the rules and regulations but was full of venom for others who did not and had periods of depression, her hostility turning against herself.

Difficult, provoking, or aggravating reactions of patients are often a response to acute situational anxiety. The responses may take many forms, and at times seem deliberately calculated to irritate or annoy professional workers. There are the patients who always seem to be involved in infractions of rules, or who seem to persist in exposing others to infection. Sometimes they become hostile to members of their family, or at an institution to particular doctors or nurses; or they may displace their hostility to minor issues, for example, to

complaints about their food, their rooms, or their work assignments. Some patients complain of being guinea pigs, and are suspicious and distrustful of everything that is done for them.

The situations which arouse anxiety are legion. Many patients react anxiously to every change in medical procedure or in hospital rules, and to every new phase of treatment. A common complaint, which often seems incredible to attendants, is the statement, "I have never been told." Changes in the patient's family—illnesses, marriages, divorces, fears of infidelity of the spouse—are common causes of disturbance.

Many professional workers respond to the emotional needs of their patients with sensitive understanding. They recognize that complaints are always real to the patient even if they have no counterpart in anatomy or physiology. They are ready to look for the meaning of complaints in the patient's dissatisfactions and fears, in his feelings of bewilderment and helplessness, and in his sense of loss of continuity in the routines of living. They recognize and accept a responsibility to deal with all of a patient's problems, with his human needs as well as his physical disability.

For many professional workers, such a response is intuitive and direct. It does not need to be sifted through the maze of psychologic theory, and often it does not depend on special psychologic training. However, good training helps to channel and routinize such responses; it strengthens professional discipline and eases the burden of professional activity.

Where the professional worker seems unaware of his patient's emotional needs one may suspect the presence of a number of misconceptions which may be the result of inadequate or poor psychologic preparation, or of emotional difficulties in the worker in the face of special personality problems in patients. Certain common misconceptions are derived from theories of disease which are now undergoing revision. The materialistic search for specifics in the treatment of various infections, for example, while eminently successful in the present-day triumph of antibiotic therapy, has hardly in itself tended to stimulate an interest in the patient's personality. Actually, however, research advances in the control of communicable disease have led to greater realization of the importance of social and psychologic factors in medical practice, and if the physician is to maintain his samaritan role, which after all is socially indispensable, he will need to acquire professional skills in the social and psychologic, as well as in the biologic sciences.

The transition period, in the meantime, is attended by painful readjustments among physicians and their coworkers. Many have very little belief in the effects of psychologic forces on organic processes, or in their own ability to help patients through psychologic means. They are often led to depersonalize their relationships with patients by ignoring the patient's emotional life or by denying any responsibility for their own psychologic behavior. There is then a tendency to militarize the doctor-patient relationship with the doctor giving the orders and the patient quickly and submissively obeying them. Such an attitude is often rationalized with the idea that the patient's recovery depends on his following medical advice and if he chooses to ignore it, that is his bad luck, and it is his own fault if he does not get well.

Professional workers who are not alert to the underlying meanings in the reaction of patients may experience a patient's expression of dependency as the equivalent of an excessive demand for affection and may respond by shutting themselves away emotionally in their contact with the patient. They may develop routines of avoidance of

emotional interplay, or find it difficult to listen to patients, or when they have to listen, to pay attention to what the patient is saying. They may place undue emphasis on purely physical procedures and on a strict, routinized carrying out of such procedures. They may tend to interpret a treatment plan in a formalized and stereotyped manner, neglecting the factors of individual variation, such as differences in temperament and personality, and overlooking the presence of neurotic disorders, manifested for example by such symptoms as motor restlessness, depression, or morbid fears of "needles" or operations.

Thus far, I have pointed out that reactions of patients with a chronic illness depend mainly on three sets of factors: the nature and course of the illness, and methods by which it is treated in its various phases; the patient's personality, and the special meanings which the illness acquires for him; and the attitudes of professional workers, on whom the patient becomes emotionally dependent during the course of his illness.

Medical personnel who deal with such patients are more and more accepting the idea that social and psychologic dimensions must be added to the biologic in understanding and treating illness, and that the personal orientations of the patient and his interpersonal interactions are important aspects of the disease picture and of the general organismic response to treatment.

In tuberculosis a new treatment plan needs to be formulated at each successive phase in the patient's course. Each changing phase creates a new situation, as it creates new problems for the patient and his family. It is thus important for the medical team to think in terms of what might be called a psychosocio-biologic diagnosis. A simple way of formulating this is by the question, given the organic disease process, what will treatment mean to a particular patient in his particular life circumstances?

In more concrete terms it might be helpful to keep in mind two psychologic principles: The patient is a person with his individual character and an effort must be made to understand his behavior more or less in the way he would see it himself, and all behavior is meaningful if it can be sufficiently understood and appreciated as necessary to the maintaining of some kind of psychologic equilibrium.

It should be emphasized that a medical team caring for a patient with tuberculosis need not assume responsibility for a pre-existing psychiatric illness. When a patient with a neurosis or character disorder acquires tuberculosis, the entire focus of his psychiatric disturbance undergoes a shift, and his major psychologic concern becomes the threat to his health and survival. Not that the psychiatric condition disappears, rather that it becomes submerged as the forces of the personality are reoriented to meet the external threat of disease. For this reason only a small percentage of patients with tuberculosis will be in need of treatment by a psychiatrist, or be able to benefit by such treatment.

On the other hand, it is extremely important for the medical team, particularly the physician, the nurse, and the social worker, to acquire a psychiatrically oriented attitude toward the patient. It has often been noted that in tuberculosis the emotions appear to be deeply stirred, although this may be true of any chronic illness, particularly where the course and the consequences are uncertain and unpredictable. In any event, good medical treatment would seem to require that supportive emotional measures be given as much consideration as a supportive physical regimen, and that the balance sheet of mental and physical hygiene be properly maintained throughout the course of illness.

Fortunately, all medical personnel—physicians, nurses, social workers, and

workers in other allied fields—are now receiving more intensive psychiatric orientation, both in their school curriculums and in postgraduate training. With the help of such orientation workers are interested in developing a dynamic, longitudinal view of the patient's course through chronic illness. They ask themselves new questions, as for example: What stresses are involved for the particular patient in learning the diagnosis, in going to a sanitarium, in learning to adjust himself to institutional living, or to readjust himself to living at home with his illness? How can the patient be helped to maintain a sense of personal integrity and of continuity of experience with his family? How can he be supported emotionally in times of difficulty, when troubles arise in his family, or when he finds himself reacting with turmoil to certain aspects of his treatment? How can he be helped to accept his illness realistically, with all its implications for his own future and his family's?

These are some of the questions that must be asked in the modern treatment of tuberculosis. For the professional worker they call for attitudes which are as disciplined to the service of the patient's emotional distress as to that of his physical disorder. The emotional component of illness is inseparable from the whole and a high level of medical practice would seem to be unthinkable in association with primitive, undisciplined, and unprofessional performance in the response to a patient's emotional needs.

International Mycologists Organize

The International Society for Human and Animal Mycology was founded in Paris in July, 1954, by a group of scientists attending the eighth International Congress of Botany. The objects of the society are: to bring together qualified persons interested in the study of fungi living on human beings and animals; to encourage the formation of regional groups; to organize meetings of the society on the occasion of international congresses; to publish, as soon as possible, a bulletin devoted to human and animal mycology.

President of the society is P. Redaelli of Milan, Italy. Four vice-presidents include Chester W. Emmons, M.D., chief mycologist, National Institutes of Health, Public Health Service, Bethesda; G. T. Ainsworth of England; P. Negroni of Argentina; and G. Segretain of France. Its general secretary is Professor Dr. R. Vanbreuseghem, Institut De Medecine Tropicale, 155, rue Nationale, Antwerp, Belgium.

Those wishing to become members of the new society are invited to send admission applications to the general secretary, giving details of their qualifications and a list of their scientific publications. Annual membership dues are $3.

Medical Care Functions of the Detroit Health Department

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Something is to be gained from the lack of standardized administrative practice in the ways the public health is promoted and protected by the ruggedly individualistic communities of our land. Essentially it is true that no two places see alike their problems and the ways to their solution. This is the story of what one city has done, generation after generation to centralize, rather than departmentalize, its health and medical care services.

Although the earliest beginnings of public health in Detroit are difficult to ascertain, it is apparent that the primary concern of the city authorities was devoted to complaints of nuisances. As early as 1825 the Common Council appointed a committee to make an examination of nuisances and recommend action for their abatement. In 1827 a commission of three physicians was appointed to report to the Common Council, "such measures both general and particular embracing objects both of public and individual police as they may consider conducive to the health of the city." These are apparently the first recorded official actions taken by the city in developing an environmental health program. Gradually this program became more important and included the cleaning up of the Detroit and other rivers, the control and provision of public water supplies, and sewage disposal systems until now the environmental health program embraces every aspect, including pollen studies, noxious weed destruction, and air pollution studies.

On October 1, 1831, the Common Council added "one physician to the Board of Health" because "there is reason to apprehend the arrival at this port (Detroit) of a vessel or vessels on board of which there may be cases of smallpox." Two days later a report of the Board of Health recounted that they had visited "a black man—labouring under unequivocal confluent smallpox." As a result, Drs. R. S. Rice and J. L. Whiting (signers of the report) were "appointed health officers" whose duty it was to visit all vessels to examine all persons on board and clearing such persons for landing. Further, it was required that the health officers proceed from house to house throughout the city and vaccinate all persons who may not have been previously vaccinated or had smallpox. A committee of the Common Council was appointed to erect or procure a "pest house" for the reception of all such persons as are infected or who have been exposed. Thus, the earliest history of public health includes not only environmental sanitation, but communicable disease control, epidemiology, prevention through iso-

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lation of cases, quarantine of contacts and vaccination of susceptibles. To be sure, medical care was furnished only to those who were "infected" and placed in the "pest house," and to those who were paupers. The maintenance of the "poor, lame and sick—who are not able to maintain themselves was authorized by the Territorial Legislature in 1809." "Three discreet persons" were appointed by the judges of the district court and directed to "provide houses, nurses, physicians and surgeons, for such persons as they shall judge necessary."

Detroit's first public hospital was the rented "pest house" of 1831. In 1839 a cheap one-story shed was built for the care of the homeless and destitute patients. Other victims of the smallpox outbreak were cared for in private homes whose owners were paid for board and nursing. From 1848 to 1851 the city built a small hospital consisting of two log cabins where care was given to smallpox victims.

At first the destitute poor were cared for in a hospital built (1845) by the Sisters of St. Vincent de Paul under a contract made by the City Director of the Poor or by city physicians who were under him. In 1861 the Board of Health was empowered to "rent proper houses to be used for pest houses and hospitals." In the ensuing years the Board of Health was charged with having control of all city hospitals and to employ "such nurses, officers, agents, servants or assistance as may be deemed necessary." Other ordinances authorized the Board of Poor Commissioners to control and supervise not only the care of paupers who were a charge of the city and sick from infectious disease, but any pest house established for shelter of such cases. The commission was also authorized to contract with private hospitals for the care of the indigent sick.

In the interim between 1848 and 1948, there was a split in the operation of hospitals by the two departments of the city government. In 1881 the city government was reorganized. Dr. O.W. Wight became the first full-time health officer at a salary of $3,000. In 1883 the county purchased a site, part of the grounds of the present Herman Kiefer Hospital, and the city built a hospital to accommodate 50 patients. The Sisters of Charity operated the hospital for the care of patients ill with contagious disease and received $12 per week for each patient. These buildings

Table 1—Herman Kiefer Hospital

1953	Admissions
Tuberculosis Unit	1,390
Contagious "	1,491
Maternity "	4,923 (deliveries)
Antepartum and Postpartum	14,516 (visits)
Well Child Clinic	2,306 (visits)
Premature Clinic (Started 1954)	
Tuberculosis Outpatient	83,853 (visits)
Public Health and Hospital Laboratory	1,067,364 (examinations)
Houses Division of Maternal and Child Health	
" " " Industrial Hygiene	
" Nutrition Section	
" District Headquarters	
" Rehabilitation Institute	
Research	
Teaching Wayne University Medical School	

were destroyed by fire in 1892 and the Board of Health leased for two years the steamer, the "Milton D. Ward," to care for the expected victims of a cholera outbreak which did not materialize. In 1894 a temporary hospital of canvas tents was leveled in a storm overnight and several smallpox patients died of exposure. Within a month a small frame building was erected to handle the epidemic. Other contagious diseases were cared for in private hospitals. It was not until 1911, however, that the present Herman Kiefer Hospital (see Table 1) was formally opened to handle all types of contagious disease, as well as smallpox and tuberculosis whose victims were overcrowding the "pest house" built in 1894 for the care of smallpox patients.

Over a period of years units have been added and old buildings replaced. In 1915 a tuberculosis unit was built. In 1919 a maternity unit was opened. In 1920 a new institution, the Maybury Sanatorium, located outside the city limits was opened for tuberculosis by the Detroit Health Department and in 1954 a new 250-bed unit for tuberculosis was opened at the Herman Kiefer Hospital.

In 1913 the city determined it would furnish more hospital space for its sick poor and under the Board of Poor Commissioners constructed the first unit of the Detroit Receiving Hospital. The City Physician's Office became attached to the Receiving Hospital.

In 1948 the Weltare Department, which operated the Receiving Hospital, was severely criticized and as a result of the vote of the citizens the 538-bed Receiving Hospital, its branch, the Redford Receiving Hospital, containing a 48-bed emergency unit, and the City Physician's Office were transferred to the Health Department. Since 1949, therefore, all city operated medical hospital facilities in Detroit have been administered by the Health Department.

Medical Care Activities

At the present time, in addition to operating the classical preventive program of public health, the Detroit Health Department is engaged in operating extensive medical care programs. These include:

Table 2—Facilities Operated by Detroit Health Department

1953	No. of Admissions
Central Office X-Ray Clinic	27,989
5 District Health Centers	
Well-Child Conferences	11,115
Herman Kiefer Hospital	7,989
Maybury Sanatorium	821
Receiving Hospital	19,487
Redford Emergency Branch	14,473
City Physician's Service	36,007 (visits)
2 Mobile X-Ray Units	56,410
School Dental Program (including Receiving Hospital Clinic)	71,154 (visits)

The transfer of the Receiving Hospital was motivated by a City Efficiency Committee appointed by the Mayor to study and recommend means whereby the services at the Receiving Hospital could be made more effective. It was the opinion of the committee that the hospitals of the city should be operated by a single department and that the Welfare Department should concern itself with the administration of relief and not operate a hospital facility. It made these alternative suggestions: (1) the creation of a Department of Hospitals by transferring to it the hospitals from the Welfare and Health Department; or (2) the transfer of the Receiving Hospital to the Health Department.

After testimony by the Health Commissioner, the final decision was reached to transfer these services to the Health Department and the City Charter was amended to this effect in 1949.

Table 3—Receiving Hospital

1953	Admissions
General Hospital	13,134
Psychiatric Unit	6,353
Emergency	121,462
Outpatient Clinic	126,540 (visits)
Dental Clinic	80,272 (")
Drug Addiction Clinic	111 (cases)
Venereal Disease Clinic	45,203
Prenatal Clinic (Started 1954)	
Redford Emergency Branch	14,473
City Physicians' Office	36,007 (visits)
Home Delivery Service	274 (deliveries)
Ambulance Service	23,566 (runs)
Research	
Teaching Wayne University Medical School	

Advantages of Combination

Numerous advantages have accrued to the citizens as a result of this gradual consolidation. Illustrative of these benefits, which must be apparent to all, is the tuberculosis control program. Since the Tuberculosis Coordinator of the Health Department is concerned with the entire program, including case finding, health education, sanatorium admission care and discharge, as well as follow-up of the patient after discharge, there is possible a continuity of the program. There is no interruption of the schedule due to the red tape involved in a multiplicity of jurisdictions as is commonly observed where there is divided authority. As a result prompt hospitalization is available to the newly discovered case; contacts are rapidly examined in the hospital clinics; surgical procedures are centralized at the Herman Kiefer Hospital; and transfers from the Maybury Sanatorium to Herman Kiefer and back, in accordance with the patients' needs, are made without delay. Moreover, it is possible to utilize better the facilities of both institutions because of this ease of transfer of patients. With the advent of the antimicrobials and the development of more extensive home care treatment following the initial sanatorium treatment, Detroit tuberculosis patients are able to return to their homes earlier, since the same agency that controls the sanatorium has already determined the suitability of the home for continued antimicrobial treatment. Because the patient follow-up workers are employed by the same agency, there is rapid referral of cases and records are available without duplication. Since the outpatient services to which the home care patient returns for periodic re-evaluation are operated by the same agency, this continuity of uninterrupted care is assured the tubercular patient. The Health Department is in a better position to adapt care to the individual patient's need. As a matter of fact, only one additional facet is needed to make this program perfect—as dropping mortality and shortened sanatorium stays are indicating—and that is the prevention of the disease itself. This, too, has in part been initiated. Secondary prevention through early detection is a routine part of the program. Health education as in other departments plays an important role, but primary prevention through BCG vaccination is carried out on newborn infants who arrive at the Maternity Unit and are followed up in the Well Child Conference and vaccinated against tuberculosis in the Tuberculosis Outpatient Clinic. Since most of these are from the Negro population and are medically indigent, this is an example of primary prevention in a population group where tuberculosis is more prevalent than elsewhere in the city.

Another example of benefits that accrue to the family by this coordination of services is the development of the Maternity Unit at the Herman Kiefer Hospital. Prenatal clinics are housed at the Herman Kiefer Hospital and the

Receiving Hospital. Obstetrical services are available at the Herman Kiefer Hospital and a home delivery service is administered from the Receiving Hospital. Follow-up visits of the mother at these institutions and of the newborn infant are available at the department's Well Child Conferences. Thus, again, a continuity of care, without interruption, and with the avoidance of expensive duplication is available to the family. In turn, the staff is able to evaluate deviations from normal health, treatment, and follow-up. Clinical research requiring long observation is made possible; mother and infant can be studied as a unit. The effect of treatment can be evaluated from the point of view of the child, from the fetus through birth, infancy, and early childhood; and simultaneously it can be evaluated as it affects the mother. This is an excellent example of the way health supervision and medical care can be integrated by the Health Department. In addition, the department has recently undertaken a series of studies on premature infants which could not be made unless the families were available for observation for a period of years.

Many more examples could be cited of the advantages to the patient of the integration of public health and hospital administration within the same department. Police ambulances bring emergencies to the Receiving Hospital. Here every admission—emergency, inpatient, or outpatient is scheduled for a chest x-ray. All suspect tuberculosis cases are immediately followed up and if a positive diagnosis is established, the family contacts are investigated. If a patient is found to be an alcoholic and is judged rehabilitable, steps are taken to cure his condition. Similarly, drug addicts or persons with venereal infections are referred without delay for proper treatment and follow-up of contacts by persons who are skilled in these tasks.

Administrative Advantages and Problems

Since the department administers three hospitals (all the public hospitals of the City of Detroit) many administrative devices to bring about increased efficiency or effectiveness are made possible. The Board of Health acts in the capacity of "trustees" for all institutions. Personnel policies are uniform and there is no competition between public hospitals and other departments for health personnel. Purchases for all three are grouped and made on a basis of specifications and bids—thereby reducing red tape whenever possible and obtaining quantity discounts for larger orders. The development of a central storage facility would bring about further economies and recommendations for its establishment have already been made. Certain other devices have been centralized, such as ambulance services, the development of a uniform menu, and the development of uniform administrative and clinical records.

Preparation of budgets, the keeping of hospital accounts, and other fiscal control procedures are gradually being standardized. Perfection of these administrative procedures takes time and changes sometimes must await suitable opportunities for their initiation. As in all large departments involving several institutions, changes are costly and the alteration of established routines must first be tested in pilot studies. Thus, after careful evaluation of new procedures, those found to increase efficiency or economy can be instituted at an opportune time. This may have to await the utilization of existing printed forms, the beginning of a new fiscal year, or the retirement or other replacement of key personnel who may, for one reason or another, resist a change from the old routine.

An Employee Award Fund, adminis-

tered by the City Controller, offers cash awards to employees who make suggestions for the improvement of services of the city government. An unusually high percentage of these awards have been won by Health Department personnel, particularly in the Receiving Hospital. This suggests a high morale of the department's employees, especially in the hospital which has most recently come within the department's jurisdiction.

Professional Relations

Another intangible but realistic advantage to the department is the friendly and intimate relations which have been established between the various professional organizations and the department. Contacts between department employees and private practitioners are much more numerous. Thus, because of these contacts, the private practitioner has a better opportunity to understand the objectives of public health and, on the other hand, the department staff is more aware of problems of the family doctor. The combination of these aspects of health gives the personnel a more rounded outlook and an appreciation of more of the facets of any program than if the department were responsible for preventive services alone.

Since the staff of the Department of Preventive Medicine of Wayne University Medical School is made up entirely from the staff of the Health Department, there is a close relationship between these two departments. The Receiving Hospital and the Herman Kiefer Hospital are the primary clinical teaching facilities of the medical school. The hospital staffs serve in professorial and instructor positions in the medical school. So, from the very beginning of his medical career, the Wayne medical student is imbued with the concept of prevention in the practice of medicine. This association is mutually advantageous, the medical school as well as the department can obtain better staffs, and the exchange of professional relations is immeasurably increased. The medical student profits the most since he learns of the compatibility of preventive and curative medicine—to him they are one without artificial schism.

Symbiosis Not Dilution

It is true that the board, the Commissioner, and his immediate assistants must divide their time between institutional management and public health services, but the board meets weekly and the department has additional specialists who handle over-all administrative policies and procedures for the department as a whole. In the final analysis, while it is true that a health officer must divide his time between hospital administration and public health practice, this need not be a disadvantage as some public health administrators contend. In a properly integrated health department, adequately staffed with competent specialists, the integration within it of all major health activities, including hospital administration, not only makes these services more efficient and economical, but also offers an additional challenge and opportunity to the personnel to do a better job. Moreover, personnel in such a department are better qualified to do both jobs—public health practice as well as hospital administration. Private practitioners, as well as the public, seem to prefer to go to a single place to settle all health problems concerning the city government.

Conclusion

In Detroit, contrary to the recently prevailing trend, there has been a centralization of municipal health activities

within the Health Department. Through this integration of medical home care of the indigent, hospitalization of the indigent and emergency cases, hospitalization of indigent maternity cases, communicable disease cases, and tuberculosis, together with the usual public health activities, the public has been able to buy better health; the doctor knows where to take his problem; and the Health Department personnel can give maximum service at the least inconvenience to those served. The people, the city officials, the vendors of service (practitioners) as well as the Health Department staff like the integration and profit by it.

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Newburgh's 10 Year Fluoridation

The Newburgh-Kingston Fluoridation Study in New York celebrated its 10th anniversary on April 21 in ceremonies in which it was reported that "reports confirm earlier findings that water fluoridation has no demonstrable systemic or developmental effect on children except for the known dental benefits of reduction in tooth decay." Addresses were made by three staff members of the New York State Department of Health, including the director of Bureau of Dental Health, David B. Ast, D.D.S., and by Samuel Z. Levine, M.D., pediatrician-in-chief, New York Hospital, and a member of the State Health Department's Technical Advisory Committee on Fluoridation of Water Supplies.

As a part of the study, the city authorities of Newburgh approved the fluoridation of the city water supply while those of Kingston with a fluoride-deficient water supply agreed to participate as a control area. For the six- and seven-year-old Newburgh children, who had consumed fluoridated water all their lives, the decayed, missing, and filled rate for permanent teeth was 75 per cent and 68 per cent lower than for those for comparable Kingston children.

The total cost of the study including the cost of fluoridating Newburgh's water supply has been about $300,000 or about $30,000 annually. Said Morton Levin, M.D., making one of the day's speeches, "A reduction in dental caries of approximately two-thirds among children and the adults of the future makes the cost of this study and the costs of fluoridating water supplies a truly economical practice."

A Canadian Table of Average Weights for Height, Age, and Sex

LIONEL BRADLEY PETT, Ph.D., M.D., F.A.P.H.A.

How tall is "average"? And how heavy? For the first time on this continent, at any rate, the Canadians have collected representative national figures.

Growth is possibly the most fundamental characteristic of the developing human organism. It can be measured in various ways, and it is certainly affected by various influences. None of these influential factors is more important than diet. However, this paper deals only lightly with the relation of diet to development, and the relation of weights and heights to nutritional status. It is concerned with an even more elementary and more basic question of sampling an entire nation to obtain average weights and heights. We have sampled the entire Canadian population of 15,000,000 people and have average weights believed to represent that population to an accuracy of 5 per cent. So far as I know, this is the first such representative table in the world.

I wish to make clear, and at once, that I believe it is important to compare an individual child's height and weight with previous measurements on the same child. For children, our averages are of interest only in a group sense and in certain special ways related to the age of body development.

On the other hand, for adults these figures give us a sounder basis than any previously available for the study of obesity and its relation to the great killers—the degenerative diseases. In short, I am reporting a baseline from which we expect studies to develop in several directions. It is not necessary to dwell on the fact that adiposity shortens life and that a person's weight depends largely on the amount and kind of food consumed.

In spite of all the discussions about weight, there are still no clear definitions for most of the terms used. This has resulted in actual misuse of words like overweight, obesity, normal weight, etc. In most dictionaries normal is a synonym for average. But this is the first time, in Canada at least, that tables are available of average weights, so that a Canadian's weight may be compared with the average weight of all other Canadians in the same height and age group.

Many people use tables dating back to those of Baldwin-Wood and other studies of 40 years ago. Such tables have been copied so much in one place and another, often with small changes, that the origins of some of the figures are unknown. Most of us use insurance tables for adults, but I must remind you that they were originated in a rather complicated manner, including consideration of the purely economic question of losing money on a risk.

Overweight is not the same thing as obesity or adiposity. In fact, the differentiation of these terms when it becomes possible, may hold important clues for greater success in controlling degenerative diseases and in the role that diet plays. Obesity or adiposity is an accumulation of fat that is detrimental to the person. Moderate accumulations can occur without much weight increase.

On the other hand, muscular hypertrophy may increase the weight (e.g., in football players) with a minimum of fat under the skin or elsewhere. Some measure of body fatness or leanness, as well as weight and height, then becomes important in defining these terms. For this reason a skinfold measurement on the back of the upper arm was included in the Canadian Weight-Height Survey, and tables relating these measurements will be available. The calipers used were those developed by Ancel Keys, Ph.D., and his associates at the University of Minnesota which were standardized for area and pressure.

Sampling—A good plan for an experiment is more important than any other aspect of carrying it out. In medical research a new faith in random samples, controlled series, paired series, etc., is slowly building biologic results into predictable accuracy. We were fortunate in getting immediate interest and assistance from several mathematical and statistical experts in the Dominion Bureau of Statistics. Indeed, the time was good for such a sampling as we wanted because the 1951 census results were just completed and could be used for many purposes and the difficulties in estimating the labor force in Canada had been largely cleared up.

The sample was selected by the area stratification plan, proportionate to population density. The entire country was divided into primary sampling units, each of which had a dominant characteristic, such as a particular industry, type of farming, soil type, climate, national extraction, or others. All sampling units with similar basic characteristics were grouped together into a stratum and one or more units were selected by random procedure to represent all the units in it. These units were not necessarily of equal population nor were they contiguous, but the randomization gave each individual an equal chance of being included in the sample.

This process yielded 59 units in which to make measurements, 13 of which were metropolitan. The nonmetropolitan units were subdivided into urban, rural nonfarm, and rural farm areas for further random selection according to the number of persons to be measured. In the metropolitan areas a selection of city blocks was used. In each area a sampling ratio was used of approximately 0.1 per cent of the population of the stratum represented because this figure gave about 400 individuals in each sex and age group of the final table planned.

Large-scale maps of each area were obtained and the specified number of households were selected from lists of census visitation records. Thus the sample was located geographically and pinpointed on maps.

Since it was not possible to predetermine the age of each person to be visited, it was decided that a suitable dispersion of ages would result from combining three different approaches: (1) in schools where all children between five and 16 years could be located and visited according to the necessary ratio; (2) in business establishments employing 15 or more persons, an arbitrary category used because records of such establishments are available in lists from which random selection could be made; and (3) in households where housewives, preschool children, older persons, and others not covered above could be reached.

Excluded were those confined to bed through illness, pregnant women, children under two years, Armed Service

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personnel in camp or barracks, Indians on reserves, and certain classes of cripples and invalids. Allowances were made in the numbers selected for non-interviews, the rate running about 20 per cent for all reasons.

Equipment—The equipment consisted of heavy scales of a lever and spring type, mounted in a suitcase, a measuring rod, and a skinfold caliper. Of the many scales considered, a type with an airplane dial (to avoid parallax errors), checked frequently with standard weights to maintain accuracy to one-half pound, was used. The measuring rod was telescopic and had a horizontal cross bar; it measured normal upright posture without straightening the spine to the nearest one-fourth inch.

The field work was done by nutritionists and nurses of the Nutrition Division after special training and a pilot study that was not included in the results. Ordinary indoor clothing, except shoes, was left on. Cooperation generally was good. People stated their year of birth more readily than their age, and men were more hesitant than women in revealing age information.

The field work began in March, 1953, and was completed in October, 1953. Almost 22,000 individuals were weighed and measured. All regions of Canada were visited, as well as heavily populated areas. Dependable workers, of known accuracy and integrity and with the enthusiasm of full training and staff loyalty were a valuable asset in getting good survey results rather than just some figures.

All records were transcribed to punch cards by the Dominion Bureau of Statistics, but the resulting tables and the ultimate report are being issued by the

Table 1—Average Height and Weight of Canadians by Age and Sex (1953 Survey, Nutrition Division, Department of National Health and Welfare, Ottawa)

	Male		Female	
Years	Average Height (Inches)	Average Weight (Pounds)	Average Height (Inches)	Average Weight (Pounds)
2	34.7	30	33.6	28
3	36.6	32	36.0	31
4	39.2	37	39.2	36
5	41.9	40	41.8	41
6	44.6	46	44.2	44
7	47.0	50	46.5	49
8	49.1	57	48.9	57
9	51.3	63	51.0	62
10	53.5	70	53.3	69
11	55.4	77	55.3	77
12	57.4	84	58.2	92
13	59.3	94	60.4	102
14	62.2	108	61.3	107
15	64.7	119	62.2	112
16–17	66.7	136	62.5	120
18–19	68.0	144	62.6	124
20–24	67.9	154	62.8	124
25–29	68.3	160	62.7	126
30–34	68.0	167	62.8	130
35–44	67.5	167	62.4	135
45–54	66.9	164	61.8	144
55–64	66.0	161	61.3	147
65 and over	65.5	155	60.6	138

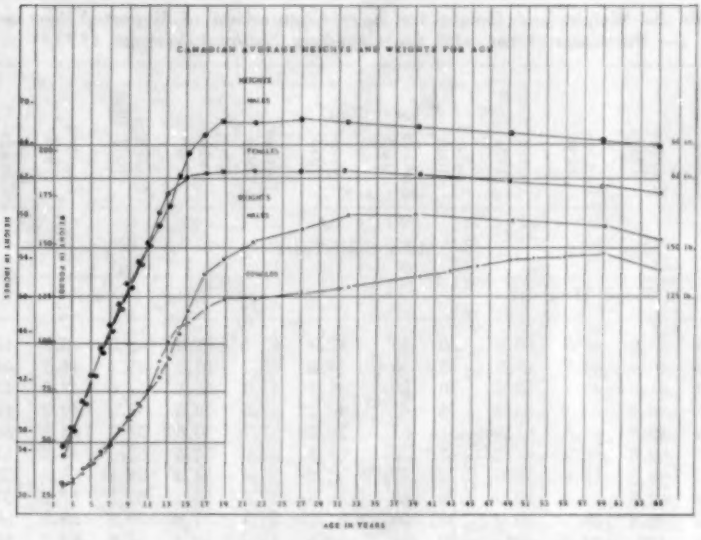

Figure 1

Department of National Health and Welfare.

Table 1 gives the averages for each age group, and these figures are graphed in Figure 1. Of interest in the chart is the earlier maturity of girls over boys, shown by the crossing over of the lines for each sex. These are not new findings, but are now reported in national averages. Men's average weights decrease after age 30, while women's averages continue upward. Many other interesting points may be observed in these curves.

In Table 2 the Canadian averages for children are compared with regional results from Toronto, England, and United States, arranged according to year of study. In the last 30 years children have been said to be taller and heavier than their fathers. The new Canadian averages support this idea when compared with earlier figures as was done here. It should be noted, however, that the end result is about the same. Adult heights have not changed much over the years, only the rate at which they are reached. There is also some lag in the increase during recent years, as compared with an earlier period. For example, note the Toronto figures for 1923 and 1939, and the Canadian 1953 results. Weights at a given age show a progressive increase, but not as much in the recent 14 years as in the previous 16. Heights for Canadians as a whole, have changed scarcely at all in the last 14 years as compared with the previous 16 years in Toronto.

There are several factors to consider in explaining this slowing down, but the separate effects cannot be separately evaluated. (1) Perhaps nutrition is closer to its goal now than in the 1920's and 1930's when nutrition education was much less organized than at present. (2) Certainly, the national origins of Toronto school children differ from those of Canada as a whole, and may even have changed in the time interval. Toronto has fewer of French origin, a fact that would give averages slightly higher than for the whole of Canada. Detailed study has shown, however, that

Table 2—Weight and Height for Age—Comparison of Reported Averages for Particular Areas with the Canadian National Average (1953)

Age	Toronto 1923	Toronto 1939	London 1938	United States 1937–1939	England 1948	Canada 1953	Toronto 1923	Toronto 1939	London 1938	United States 1937–1939	England 1948	Canada 1953	Age
					Males 5–15 Years								
	Weight (Pounds)						Height (Inches)						
5	41.6	43.0	40.5	40.9	40	40	42.3	43.1	41.8	42.5	42.5	41.9	5
6	46.0	46.4	44.9	45.5	45	46	44.8	45.1	44.1	45.2	44.7	44.6	6
7	48.8	51.3	49.7	50.2	50	50	46.2	47.4	46.3	47.5	47.0	47.0	7
8	53.5	56.8	54.8	55.5	56	57	48.2	49.6	48.5	49.6	49.2	49.1	8
9	58.6	62.9	60.3	61.3	61	63	50.2	51.7	50.6	51.7	51.5	51.3	9
10	64.6	68.8	66.2	67.3	67	70	52.1	53.6	52.5	53.6	53.2	53.5	10
11	70.5	75.2	72.6	73.6	72	77	53.8	55.4	54.4	55.4	55.0	55.4	11
12	76.8	82.5	79.4	80.9	79	84	55.5	57.4	56.2	57.3	57.2	57.4	12
13	85.0	90.8	86.7	90.0	88	94	57.5	59.4	57.8	59.5	59.5	59.3	13
14	93.4	100	94.5	101	99	108	59.6	61.6	59.4	61.9	61.7	62.2	14
15	103	112	....	115	113	119	61.6	63.9	....	64.6	64.2	64.7	15
					Females 5–15 Years								
5	40.5	42.0	39.7	39.7	40	41	42.5	43.0	41.6	42.4	42.2	41.8	5
6	44.9	44.9	43.6	44.1	44	44	44.7	44.8	43.7	44.8	44.2	44.2	6
7	47.6	49.9	48.1	49.0	48	49	46.0	47.1	45.9	47.1	46.5	46.5	7
8	51.9	55.0	53.2	54.3	52	57	48.0	49.3	48.0	49.2	48.7	48.9	8
9	57.4	61.2	59.0	60.1	57	62	49.9	51.4	50.2	51.3	51.0	51.0	9
10	63.3	67.8	65.6	66.6	63	69	51.9	53.4	52.4	53.3	53.0	53.3	10
11	70.7	75.8	73.0	74.5	71	77	54.0	55.7	54.5	55.6	54.7	55.3	11
12	78.8	86.1	81.5	83.9	80	92	56.2	58.2	56.7	57.9	57.0	58.2	12
13	88.9	95.4	91.2	94.0	90	102	58.4	60.2	58.8	60.1	59.5	60.4	13
14	98.0	103	102	102½	102	107	60.1	61.5	61.0	61.6	61.5	61.3	14
15	104	109	....	110	112	112	60.9	62.3	....	62.7	62.7	62.2	15

this slowing down cannot be explained by national origin.

There is another possible influence in this slowing down. The emphasis in 1920 was still on big babies and maximum growth rates; such visible results from attention to feeding did much to stimulate the widespread interest in nutrition that we have now. But is faster development really better for health? We now know that big babies are often nutritional problems. Rapid growth may be one of the factors in our increase in degenerative diseases. In the last 14 years nutritionists have put more emphasis on the general effects of a balanced diet rather than on growth rates. I would like to believe that this factor is also operating in this slowing down of the averages, because I believe it is the correct approach to a longer and fuller life.

In Table 3 we turn to adults. The data are given as average weights for each height increment at each age group. Here, again, some new results appear

Table 3—Canadian Average Weights for Height, Age and Sex (In Ordinary Indoor Clothing, Without Shoes)

Height in Feet	Inches	Men—Age in Years 15	16–17	18–19	20–24	25–29	30–34	35–44	45–54	55–64	65 and over
4	11	92	99	116	121	128	134	135	127	138	126
5	0	97	103	119	124	132	138	139	132	141	130
	1	102	108	122	127	135	141	142	136	144	135
	2	106	113	125	131	139	145	146	141	148	140
	3	111	118	128	134	142	148	150	146	151	144
	4	116	122	131	138	146	152	153	150	154	149
	5	121	127	134	142	149	156	157	155	157	154
	6	125	132	138	145	153	159	161	160	160	158
	7	130	136	141	149	156	163	164	165	163	163
	8	135	141	144	152	160	166	168	169	166	167
	9	139	146	147	156	163	170	172	174	169	172
	10	144	151	150	159	167	173	175	179	172	177
	11	148	155	153	163	170	177	179	183	176	181
6	0	153	160	156	166	174	181	183	188	179	186
	1	158	165	160	170	177	184	186	193	182	191
	2	163	169	163	173	181	188	190	197	185	195
	3	167	174	166	177	184	191	194	202	188	200

Height in Feet	Inches	Women—Age in Years 15	16–17	18–19	20–24	25–29	30–34	35–44	45–54	55–64	65 and over
4	8	96	105	100	106	110	115	126	130	134	120
	9	99	107	103	108	112	117	127	132	137	124
	10	101	110	107	111	114	119	128	134	139	128
	11	104	112	110	113	117	122	130	137	141	132
5	0	107	115	114	116	119	124	131	139	144	136
	1	109	117	118	118	122	126	133	142	146	140
	2	112	120	121	121	124	129	134	144	148	144
	3	115	122	125	123	127	131	135	146	151	148
	4	117	125	129	126	129	133	137	149	153	152
	5	120	127	132	128	132	136	138	151	155	157
	6	123	130	136	131	134	138	140	153	158	161
	7	126	132	140	133	137	140	141	156	160	165
	8	128	135	143	136	139	143	143	158	162	169
	9	131	137	147	138	141	145	144	160	165	173
	10	134	140	151	141	144	147	145	163	167	177
	11	136	142	154	143	146	150	147	165	169	181

that may have great significance in relation to degenerative diseases. Note the top line of Men, 4 feet 11 inches tall. As you move across the line there is a drop in average weight at 45–54 years, but it climbs again and then drops. A similar thing happens at each height up to 5 feet 6 or 7 inches, and even more marked waves occur in the figures for Women. These differences might be artifacts due to small numbers, but our study of the figures suggests that they

may represent true differences of processes at work in our population. What these are must wait some future discussion. Note, also, for Men at 6 feet the drop in average weights at 18 or 19 years of age. I have recently observed this very thing in several individual adolescents.

In any case, weight relationships to health are among the most fundamental problems needing study at the present time for the good of our whole populations. It is hoped that a small start for a suitable basis of study has been made by developing this table of Canadian average weights.

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State Programs on Alcoholism

A survey of progressive developments in the field of public action on alcoholism is the description of the brochure "State Programs on Alcoholism Research, Treatment, and Rehabilitation." It is intended both as a handbook of information and a guide for action.

The introduction is by Joseph Hirsh, consultant in alcoholism, National Research Council. It reviews briefly the history of attempts to deal with the problem of alcoholism, culminating in a medical and public health, rather than penal attack on it.

The 28 existing state programs on alcoholism are described, as well as other organizations concerned with the problem. More than nine million dollars of public funds have been appropriated since the inception of programs, the first of which was established in 1945. Licensed Beverage Industries, 155 East 44th St., New York 17. Apparently free.

Institutional Feeding—A Challenge

MARGARET A. DUNHAM

The details of one state-wide program for improving institutional feeding are usefully set forth.

Every state has increasing numbers of persons being cared for in various types of institutions, including hospitals, children's institutions, and homes for the chronically ill and aged. The increasing recognition of the importance of good food service in institutional care becomes a growing challenge to public health nutritionists.

Until recent years little attention has been given to institutional feeding, except by the few large hospitals that were able to employ the services of a trained dietitian. Indiana was one of the first states in which the health department recognized the need to provide state-wide dietary consultation to institutions, a nutrition consultant having been on the departmental staff for the last six years.

In 1945 the Legislature passed laws providing for the annual licensing of all hospitals (public and private) and children's institutions, and in 1947 the law provided for setting standards of care for the approval of county homes for the aged in which welfare recipients were cared for. These laws then gave the authority necessary to improve care, including feeding, and regulations were promulgated to carry out the law's purposes covering: (1) preparing and serving food to meet the requirements of good nutrition; and (2) adequate facilities for preparing, serving, and storing food.

The Division of Hospital and Institutional Services of the Indiana State Board of Health has the responsibility, based on its annual surveys and reports, of recommending licensure—for all general and allied special hospitals—to the Hospital Licensing Council and the State Board of Health. This division also acts as a liaison between the State Board of Health and the State Department of Public Welfare, which is the agency responsible for the licensure of children's institutions and has the responsibility for the approval program of county homes for aged. An institution nutrition consultant was added to the division staff in January, 1948, to work with the state's institutions. This position called for a person with qualifications which included a good background of experience as an administrative dietitian—to enable her to recognize and understand food service problems—teaching experience in nutrition and diet therapy, and leadership and the ability to work with others.

The work of the institution nutrition consultant so far has been with hospitals, children's institutions, and county homes for the aged. Her work will be discussed in the four major areas covered in these three types of institutions: making dietary surveys as a basis for licensure; consultation service to individual institutions; consultation service on plans for dietary facilities, new or remodeled; and group meetings for personnel of hospitals, children's homes, and day nurseries.

Survey of Dietary Facilities—The in-

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This paper was presented before a Joint Session of the Food and Nutrition and Health Officers Sections of the American Public Health Association at the Eighty-Second Annual Meeting in Buffalo, N. Y., October 15, 1954.

stitution nutrition consultant began her work by visiting and surveying all the hospitals in the state. In developing this new program it was of the utmost importance to have the approval and support of the hospital personnel. The hospital administrator was visited before the survey and at the time it was carried out. Survey visits were made close to meal hours to observe food preparation, food service to patients, and personnel and clean-up procedures.

To record the desired information a comprehensive check list was developed which covered: type of supervision in department, number of patients served, policies and procedures, equipment for food preparation and serving, and food storage facilities. Upon completion of the survey, a written report to the administrator was prepared enumerating the findings and recommendations for correction. One copy of the report was sent to the director of the Division of Hospital and Institutional Services for consideration in recommending licensure for the hospital and one copy was retained in the nutrition files. Other State Board of Health personnel, in addition to the institution nutrition consultant, share the responsibility in the licensure program.

Survey Findings—The basic finding was that out of a total of 124 hospitals, only a quarter had a trained dietitian on the staff. An additional 7 per cent had a home economics graduate in charge of the dietary staff. In the remaining hospitals the food service was supervised by untrained persons. Fifty-six of the 124 hospitals were of 50 beds or less. Obviously these hospitals were not able to afford the service of a trained dietitian and needed help from the institution nutrition consultant.

Another frequent finding was a lack of understanding on the part of hospital administrators, the medical staff, and the nurses as to what constitutes an adequate diet and the importance of good food in patient care. A rather common finding was a lack of understanding on the part of hospital administrators and board members as to what constitutes adequate kitchen equipment for the preparation, serving, and storage of food.

Almost none of the hospitals surveyed were found to have developed work organization plans for the preparation and serving of food. Few of the hospitals were found to have written policies and job descriptions for guidance of dietary personnel.

Most of the hospitals needed help in planning menus for both general and modified diets. They required help with better methods of food preparation and more efficient methods of serving food to patients and personnel.

In almost every case, methods of food storage needed to be improved. In many hospitals, dishwashing procedures were poor. Few kept accurate cost records. Many of the hospitals needed help in the arrangement of kitchen equipment to secure efficient kitchen operation.

Following the initial survey of all hospitals in the state, the institution nutrition consultant resurveyed from a third to half the hospitals each year. Hospitals revisited are those in which the previous survey pointed up major dietary deficiencies, or in which the hospital consultant nurses have reported special dietary problems, or where the hospital administrator has requested a special dietary survey be made.

Consultation Service to Hospitals—In the General Regulations for Hospitals, the section regarding the supervision of the dietary department states that if the hospital does not have a qualified dietitian they shall receive periodic consultation from a qualified person either in their local community or from the State Board of Health. Last year 26 hospitals requested and received consultation service from the institution nutrition consultant.

Most of the assistance given these hospitals has been in menu planning, since this work is done by a variety of persons, including kitchen managers, cooks, matrons, nurses, or administrators who in many instances are not familiar with the nutrition requirements of their hospital patients. Help has been given in planning both general hospital diets and diet modifications. We have found that the planning of soft diets and modified diets presents one of the most difficult problems in hospitals with untrained dietary personnel.

Menus to be used by these hospitals are sent in monthly to the consultant for evaluation and comment. This is in addition to the four or five visits made by the consultant to these hospitals during the year. Assistance is also given in other areas, such as development of policies and procedures for dietary personnel, food purchasing, food preparation, cost control, and selection and arrangement of equipment. Additional areas in which assistance has been given are: change in type of food service to patients from central to decentralized tray service, a change from table to cafeteria service for hospital personnel, and in interpreting dietary regulations and food laws.

In visits to the hospitals the institution nutrition consultant meets with staff physicians to review the newer trends in diet therapy. As a result, a number of hospitals are now using the Meal Planning with Exchange Lists for their diabetic patients developed by the Public Health Service in cooperation with the American Dietetic Association and the American Diabetes Association. Dietitians and nurses have asked for assistance with methods and materials for use in teaching nutrition and diet therapy to student nurses.

We have selected the case of a 27-bed tuberculosis hospital as an example of the kind of consultation service given to hospitals. The period of time is from 1949 to the present. In the fall of 1949 when the first visit was made the hospital administrator was satisfied with his cook and the kind of food his patients were receiving. Evaluation of a week's menus, however, showed them to be low in green leafy and yellow vegetables. Eggs were being served only twice during the week. Suppers consisted only of cold plates. Menus were planned on a day-to-day basis. The consultant, by working with the cook, superintendent, and director of nurses, has been instrumental in bringing about improved menus which more nearly meet the nutrition requirements of tuberculosis patients; the purchase of milk in individual containers for patients; installation of new dishwashing equipment, replacing a worn out two-compartment sink; and better methods of food purchasing.

Recently the director of nurses in this tuberculosis hospital asked for a series of classes for food service personnel. Since this request would affect only the few dietary employees in this small hospital, the consultant visited administrators of other hospitals in the area to see if they were interested in having this help for their dietary personnel. She found the administrators in favor of these classes and a series of four classes were given in the fall of 1954. The subjects discussed included menu planning, food preparation, tray service, and sanitation.

The experiences of the institution nutrition consultant in this one hospital points out how necessary it is to have the understanding and support of both the administrator and director of nurses and dietary personnel before patient food service can be improved. The consultant has helped hospitals to find trained dietitians for their staff, to locate dietitians who can give either part-time help to one hospital or to several small hospitals in the same area.

Individual consultation to hospitals is one method of assisting hospitals with

dietary problems found in surveys of dietary departments, but with only one institution nutrition consultant on a state staff this method is slow and expensive. In future planning for consultation to hospitals, we are considering giving more concentrated service in fewer hospitals by spending one to two weeks at a time in a hospital that asks for assistance with dietary problems, instead of making four or five short visits at infrequent intervals. By this method we hope much more assistance can be given in the areas of menu planning, food preparation, job descriptions for dietary personnel, and food cost control.

Dietary Refresher Conferences—Following the educational principle that people learn faster in groups, dietary refresher conferences for hospital administrators and dietary personnel have been held since 1951. The first conference was held in the northeastern section of the state where a number of small hospitals are conveniently located. The planning committee members consisted of a dietitian, hospital administrator, cook-manager, and cook. The institution nutrition consultant met with the planning committee. Hospital administrators were visited personally and invited to attend and to bring the person in charge of their dietary departments. Topics included on the program were: menu planning, planning modified diets, and general sanitation. Follow-up visits to the hospitals afterward showed that the administrators had profited from the dietary conference and were making use of the information obtained at the meeting.

Since 1951 dietary refresher conferences have been held in conjunction with meetings of the district hospital councils which include all hospital administrators in a prescribed area who are members of the State Hospital Association. Since we have this organization, the first step is to visit the president of the council. The council decides on the date and place for the dietary refresher conference, the planning committee making up program plans. These conferences are sponsored by the Indiana State Dietetic Association, Indiana Hospital Association, and the Indiana State Board of Health. Subjects discussed at these conferences included food purchasing, proper methods of food preparation, use of standardized recipes, and proper use of dishwashing facilities.

We have found that hospital administrators have been more interested in attending these dietary refresher conferences when they are planned in conjunction with the regular district council meetings. Requests have already been made for conferences for the coming year.

Consultation Service on Plans and Blueprints for New and Remodeled Hospitals—Another responsibility of the institution nutrition consultant is reviewing plans and specifications for new or remodeled hospital facilities which come under the Hill-Burton Act, Public Law No. 725. Since the program began, 16 new hospitals have been built and additions and alterations to 17 existing hospitals have been completed. The consultant works with the architect who has been selected to draw up the plans, the architect first making a schematic plan of the proposed building, which is then checked for functional location and arrangement of the dietary department in relation to the other hospital departments. Following a review of these plans the consultant meets with the architect and local hospital board to review the suggestions that have been made.

The architect then submits a preliminary set of plans which include placement of major equipment. These are reviewed for functional flow of work through the dietary department and for adequacy of equipment. Plans are checked for compliance with the hospital licensing regulations about provision of toilet and handwashing facilities

for dietary personnel. These recommendations are again reviewed with the architect and local hospital board. Upon acceptance of preliminary plans the architect completes the final blueprints and specifications for both construction details and built-in equipment. When these are submitted they are again reviewed by the consultant to see that all essential equipment of adequate size is provided and placed for most efficient use.

A number of hospitals not under the Hill-Burton building program have requested assistance with plans for remodeling of their dietary departments. In these cases, meetings with the hospital administrators, architect, and frequently hospital board members or county commissioners are arranged to discuss existing facilities and needed changes. After such a meeting the architect proceeds with the preliminary plans which are often reviewed with the consultant before submission to the board.

Materials have been developed for use by the consultant in her work with hospitals. These include the check list used in making the survey of dietary departments, an outline of suggested dietary policies and procedures, lists of menu suggestions, and a pamphlet on dishwashing. She also has equipment catalogues for use in discussing equipment needs with hospital officials and architects.

Children's Institutions and County Homes for Aged—At the present time there are 74 children's institutions and 82 county homes for aged. The nutrition staff has the responsibility for making annual dietary surveys of all 74 children's institutions as required for licensure and the 33 county homes for aged approved for welfare recipients. For purposes of general administration the state has been divided into five districts each of which is served by a staff of public health workers including a nutritionist. The institution nutrition consultant and the district nutritionists share the work of surveying the children's institutions and county homes for aged. In addition to the dietary surveys, consultation service is given to these institutions and one-day institutes for matrons, board members, and cooks of children's homes and day nurseries have been held in different areas of the state.

In the case of the county homes for aged we have encountered the most resistance to change in food habits and methods of food preparation on the part of staff and residents. Gratifying changes, however, have taken place in a number of homes during the past four-year period. People in the local communities are gradually getting away from thinking of the county home as the poor farm and are thinking of it in terms of a home for the chronically ill and aged.

A dietary consultant has been added to the staff of the newly formed Mental Health Division of the State Health Department. This makes a big step forward in patient care in the 17 mental and special medical institutions in the state. The objectives of the program are: (1) to standardize the food service; (2) to establish uniformity in distribution of food; (3) to provide sufficient amounts of the right kinds of food to meet the nutrition needs of the patients and employees of these institutions; and (4) to initiate an economical food purchasing program. Well planned menus, high food standards, good food production, controlled portions, as well as controlled costs are all a part of this new program.

In this discussion is outlined the way in which the Indiana State Board of Health has accepted the challenge of providing good food service for institutions. We believe the program is off to a good beginning but much more needs to be accomplished.

Chemicals and Environmental Health

HARVEY F. LUDWIG, F.A.P.H.A.

This address interpreting current sanitary engineering problems and concerns for the better understanding of chemists offers a similar opportunity for comprehension by health workers who are not professionally trained in sanitary science.

Today the sanitary engineer finds himself in an uneasy position due to the impact of the great industrial and technologic expansions that characterize today's age. The mushrooming chemical industry, the incipient wide application of nuclear energy, the revolutionary changes in food processing, and many other recent technologic developments are affecting the urban environment, and consequently the health of man, in multitudinous ways. The numerous benefits associated with these developments have detracted from recognition that the health factor may well be the limiting factor in their continuing development. For example, in the application of nuclear energy for peaceful uses, it is likely that the rate of advancement of such uses will be controlled by the extent to which the radiation health hazards associated with these uses, and with the wastes derived from these uses, can be properly controlled. This limiting condition might some day apply to the chemical industry and to most other new technologic developments. The recent political furor in Los Angeles, for example, illustrates how the effect of technologic developments on the community air is a factor which will certainly affect future industrial operations in that area.

The Chemical Environment

The concern about chemical wastes in the atmosphere is certainly most spectacular at this time, but the effects of chemicals and chemical wastes are perhaps equally profound in the other major areas of sanitary engineering interest. Contamination of sources of water supply, the widespread use of new chemicals in the production and processing of foods, the increasing use of radiopharmaceuticals, of synthetic paints, insecticides, pesticides, detergents, etc., these constitute an extremely complex chemical situation. Today chemicals pervade so many phases of man's environment we might say the environment has been "chemicalized."

Moreover, every indication is that per capita "consumption" of chemicals will continue to rise. Since World War II it has become almost boring repetition to cite the growth of the chemical industry, but we can expect no letup. The "Facts and Figures for the Chemical Process Industries," published in the June, 1954, issue of Industrial and Engineering Chemistry, notes that the chemical colossus is still growing at a pace hitherto unequalled by any other industry. In the past 25 years, the chemical industry has averaged a 10 per cent growth per year compared with a 3 per cent gain for all industry. The Federal Reserve Board's index of industrial production has increased so fast that the board has had to revise its index to maintain a perspective.

Probably the chemical industry over the next decade will experience some

tapering off in its growth rate, but we cannot be sure. One new chemical gives rise to a still newer one, or to a whole series of new ones. The process may be compared to an autocatalytic reaction, in which the rate is increased by the products of the reaction itself. To sum it up, in the words of Parran, ". . . in the historical perspective, man has just begun to live in a chemical world; the time relationship is of the order of one minute to a year." [1]

New developments do not, of course, imply only an increasing number of environmental health problems. Many of them have added to the sanitary engineer's tools. Notable examples of different types of such new developments are insecticides, fluorides, plastic lining materials, and permionic resins. Insecticides, such as DDT, the chlorinated hydrocarbons, and the organic phosphates, together with new chemical dispersing agents, have enabled the sanitary engineer to move significantly ahead in the very difficult area of combating insect and rodent vectors of disease.

On the subject of fluorides the year 1954 marked the one thousandth community installation in the United States for the addition of fluorides to public water supplies. This kind of work is environmental health at its best. The use of plastic lining materials is contributing in no small way toward improvements in food sanitation, and permionic resins may bring about a profound change in present concepts of community water supply. Pilot-scale tests have already shown the feasibility of employing these resin membranes for desalting brackish waters. Further improvements may bring into realization the dream of converting ocean waters into potable supplies. In its significance for environmental health this is a development of the greatest importance.

Pollution of Water Supplies

What is happening in the field of water resources is a merging together of interests hitherto considered essentially separate. Examples are water for domestic use, for industrial use, for power generation, for disposal of wastes, for irrigation, and for recreation. In earlier years, with fewer people and much less industry, there was in most places enough water to go around. There was enough not only for supplying the needs of consumers, but also to absorb and dilute the sewage and industrial wastes being discharged to surface streams and lakes.

Today this same, essentially constant source of water must support a growing population and an expanding economy. In the period 1900–1950, the population doubled (from 75 to 150 million) and industrial production expanded seven times. By 1975 it is expected the industrial production will have doubled again, and the population increased by another 50 million. This means more and more competition among the various water uses, which in turn will require conservation and reuse. Chemical wastes have become a most important factor in this picture, because they make conservation and reuse increasingly difficult.

The adverse effects of increasing pollution may be overcome by two processes—by treatment of wastes prior to their discharge to the stream, and by treatment of the stream water prior to its utilization as a water supply. The new chemical wastes, especially detergents and other wetting agents, are already interfering with conventional

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This paper was presented before the Kansas City Section Meeting of the American Chemical Society, November 19, 1954.

waste treatment processes. Whereas conventional processes are based on bringing about clumping and settling of dispersed particles, the detergents tend to increase dispersion and to cause flotation and frothing.

The effects of the new chemical wastes on biologic processes, which we rely on for the "finishing touches" in the treatment of sewage and other organic wastes, have scarcely been considered. It appears that municipal sewage, previously considered a product of well known characteristics and behavior, is undergoing a continuing transition such that sanitary engineers in the future may have to work out quite different processes for disposing of these wastes.

The increasing presence of chemical wastes favors or is forcing discharge of municipal wastes to the ocean. The sewerage system of the Los Angeles County Sanitation Districts, for example, has been extended farther and farther inland, putting out of business one after another conventional sewage treatment plant, primarily because the final ocean disposal which is provided can readily absorb almost any assortment of chemical complexes.

Many of the chemicals carried in wastes discharged to streams will, of course, remain dissolved in the water medium whether or not the wastes are treated. They are not removed by rapid sand filtration or by other conventional water purification processes. The physiologic effects of these materials—most of them completely new to the human body imbibing them—again remain to be evaluated. At this stage sanitary engineers have barely developed the means for recovering enough of these materials for analysis and study.

Moreover, trying to ascertain whether any of the recovered substances has any long-range toxicologic effects will probably be as difficult as determining whether smoking causes cancer. If it develops that any of the waste chemicals need be removed, one wonders how this will be done. To work out feasible processes will be very difficult because in water treatment, compared with most materials processing operations experienced in chemical engineering, the quantity of medium to be treated is relatively very large. Expressed in another way, the money available per gallon of water to be treated is relatively infinitesimal.

Food Sanitation

Chemicals are modifying many traditional operations involved in the production, transportation, storage, processing, packaging, preservation, distribution, and consumption of food. The findings of the "Delaney Committee"—the Select Committee to Investigate the Use of Chemicals in Foods and Cosmetics—have confirmed that only through use of new chemicals can the growing needs for high quality food be met.[2] Also, the committee recognized that the chemical and food industries are carrying out extensive testing programs to assure the safety of their products. The problem is the lack of up-to-date legislation governing toxicity testing of chemicals before they are used. For example, the Food and Drug Administration, in establishing standards for the use of emulsifiers in bread, pointed out that little information is available concerning their toxicity, tolerance, metabolic fate, or nutrition value. As a result, it has ruled out for use in bread the newer emulsifiers of the polyoxyethylene monostearate type, but has permitted the use of the older glycerides of fat-forming fatty acids.

Another interesting vista of new enterprise in foods is the use of hormones. The committee reported that certain hormones, while available to human beings for medical purposes only on a doctor's prescription, are used for fattening

and tenderizing poultry and livestock. Whether such usage affects human beings is one example of the increasing number of such questions for which there are as yet no answers.

A similar problem exists with respect to sanitation of utensils and other food-handling equipment used in restaurants and dairies. In each recent year an increasing number of new sanitizing and cleansing compounds have been developed. They may be designed to react with particular waters without formation of undesirable precipitates or of stains; they may facilitate drying, decrease chapping of hands, or improve bactericidal efficiency. They also may incorporate some degree of toxicity. Research is needed to furnish basic data which health agencies can use in evaluating the safety of these compounds.

The same situation applies to new agricultural chemicals. Among the health hazards are excessive exposure of workers who manufacture or apply the materials, the accidental exposure of children, and exposure of the general population in the event residues on food approach the toxic level. So far, the safety record of the newer agricultural chemicals is good.[3] To maintain this record requires increasing attention to details. For example, DDT, chlordane, and toxaphene have been recommended for controlling several alfalfa pests, but crops treated with these insecticides should not be fed to dairy animals, or poultry, or animals being furnished for slaughter.[4]

Community Air Pollution

The year 1954 has been significant with respect to the growing problem of pollution of the atmosphere over industrialized communities. In such cities as Los Angeles the accumulating irritations of a long-suffering public are resulting in potent political situations. Government—federal, state, and community—is having to take a hard look at the problem.

The public frustration with respect to the smog at Los Angeles is significant in a city noted for its confidence and uninhibited approaches in solving the serious problems encountered in its phenomenal growth. For example, when shortage of locally available water threatened expansion, this city developed the world's longest aqueducts. The smog problem at Los Angeles is actually the first serious threat to continuing municipal growth for which no known solution has yet been developed. It cannot be solved merely by the employment of consulting boards and appropriation of moneys for construction of works. The necessary basic scientific knowledge is simply not yet available. In the meantime, the phenomenal growth of the area continues, and the air resources, already inadequate under conditions of existing practices, might continue to deteriorate despite the presently conceived remedial efforts.

The smog problem is difficult because its complexity increases in proportion to modern technology, which in itself advances at an accelerated rate. It is certainly the most complex problem ever faced by the sanitary engineer. In the past, as Doyle aptly put it,[5] the sanitary engineer has "hesitated to tackle it because he lacked the necessary equipment to measure the effects on man or to measure the microquantities of contaminants in the atmosphere. Nor was there any general demand for action since the public had customarily associated stack discharge with prosperity." Only in recent years has the public's attitude changed from apathy to anxiety.

Industry is well aware of the problem and is making major expenditures to control its share of the contaminating load. Again quoting Doyle, "Air pollution is a penalty of our modern way of life, and, unless we wish to pay exorbitant prices for certain commodities, we

may have to tolerate a certain degree of atmospheric pollution for years to come." The air, like the stream, is properly, up to a certain degree, the place where man's wastes must be discharged.

The effect on health of chemical pollutants in the air has been controversial ever since the use of coal was banned in England during the thirteenth century because of the alleged injurious effects of coal smoke. Although the current literature contains many allegations on the harmful effects of increasing chemical air pollution, especially for respiratory and chronic diseases, specific data to substantiate these charges have been lacking except in instances where the effects have been acute, as at Donora in 1948 and in the Meuse Valley in Belgium in 1930. Nevertheless, it is impossible to ignore the mass of indirect evidence of chronic effects which, if not directly injurious to health, certainly are not healthful.

The solution to the problem lies in research to unravel the complex phenomena of the atmosphere. Organic matter constitutes the major portion of air contaminants, the bulk of these being such things as gasoline combustion products, organic chlorides, ketones, aldehydes, and organic acids. These make up a complex picture, which includes possibilities for synergistic reactions in which essentially harmless substances combine to produce toxic effects.

Work on sampling and analysis of air samples from many cities throughout the country, conducted by the Taft Sanitary Engineering Center at Cincinnati [6] in collaboration with state and local authorities, is furnishing information on the nature of the problem. This work has focused on the particulate matter in the samples. The samples have been analyzed for total particulate load, the amount of acetone soluble organic material, the amount of ninhydrin reactive substances, and also the level of radioactivity.

One of the conclusions already drawn from this study is that the total load of particulate matter is approximately 10 times heavier in the "dirtiest" as compared with the "cleanest" cities. Also, it appears that the organic fraction of the particulate matter is a much better index of man's contribution to atmospheric pollution than is the total particulate load, much of which may be of natural origin. The acetone soluble materials, as indicated by infrared spectrographic examination, seem to be distinctly different for different cities. Again, many toxic substances have been identified within the organic fraction, including benzpyrenes; however, there is no knowledge as to the possible long-term effects of these substances.

Another interesting finding relates to the occurrence of the ninhydrin reactive materials, which may be regarded as potential allergens. The data show that the concentration of these materials varies considerably from city to city, but in a given city does not vary much seasonally, as was expected. Concentration of the ninhydrins may be related to local waste disposal practices. In most of the cities showing high concentrations of these substances, the cities depend to some degree on home incineration for disposal of household wastes.

Another exploratory activity undertaken by the Taft Sanitary Engineering Center this year is the statistical correlation between mortality records and air pollutional data in a given metropolitan area. This sort of approach is necessary to develop information on possible health effects of periods of air pollution not sufficiently severe to produce acute symptoms.

Conclusions

Industry has already "chemicalized" man's natural environment to a remark-

able degree and increasing alteration seems a certainty. The significance of this impact on health is only beginning to be appreciated. The precise relationships between new chemicals and health are very difficult to ascertain and, when ascertained, feasible control mechanics are not easy to prescribe. A continuing research program of increasing magnitude is necessary to permit an understanding of these problems and to furnish the basic data needed for establishing intelligent and equitable systems of control.

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Food and Nutrition Section Report on Nutrition Practices

The Food and Nutrition Section of the American Public Health Association has for several years had a Committee on Nutrition Practices. Its final report was presented to the Section Council at the October annual meeting in Buffalo. It was also mailed to each member of the Section with the February Section News Letter.

The work of this committee laid the first foundation for "Nutrition Practices: A Guide for Public Health Administrators," the nutrition manual now in press and soon to be available. Several members of the Section served on the subcommittee of the Committee on Administrative Practice that prepared the Guide.

The seven-page report of the Section Committee on Nutrition Practices is available in limited quantities from the office of the American Public Health Association, 1790 Broadway, New York 19. Free. "Nutrition Practices: A Guide for Public Health Administrators" will be offered for sale at $1.00 per copy; in quantities of 25 or more, 75 cents per copy.

Rehabilitation in Workmen's Compensation

ALEXANDER P. AITKEN, M.D.

Recommendations are outlined here for the improvement of rehabilitation services for injured or ailing employees under the workmen's compensation system as made by a Subcommittee on Industrial Relations of the American College of Surgeons.

✞ Restoration of the injured worker to gainful employment is a problem of immense proportions and significance, but despite the tremendous importance of this problem it has received scant attention from those who should be most directly concerned. The problem presents many facets and many shoulders must bear responsibility in its solution. Medicine, labor, management, the insurance carriers, the legal profession, and government—as represented by the administration of state and federal compensation laws—all must share in this responsibility.

Although the rehabilitation of the worker, disabled as a result of injury or disease, is the direct concern of the medical profession, failure of any of the other groups to uphold their responsibilities may be just as deleterious to the worker's welfare as the lack of adequate medical care. None of these groups seem fully cognizant of the over-all problem or the part they must play. All are guilty in some degree of practices within their own fields which delay or prohibit the return of the disabled worker to gainful employment. It is to the consideration of these problems that the Subcommittee on Industrial Relations of the American College of Surgeons has devoted itself for the past four years.*

From my work as an orthopedic surgeon interested in the problems of trauma and as medical director of the Liberty Mutual Rehabilitation Center, it has become apparent to me that we of the medical profession in particular have been derelict in the fulfillment of our responsibilities to the disabled worker. As a result of our basic training in the medical school and hospital, where only the acute phase of injury or disease is seen, we seem to have developed the concept that our responsibility ends with the healing of the acute surgical or medical condition. The importance of continued detailed and diligent care in the convalescent period has escaped us as has the effect which such treatment could have upon the end result and upon the welfare of the patient.

The medical profession in general has failed to recognize the value of remedial

* The task force of this committee includes Kenneth E. Pohlmann, member of staff of the Welfare and Retirement Fund, United Mine Workers of America; Harry Read, executive assistant to the secretary-treasurer, Congress of Industrial Organizations; George R. Nelson, grand lodge representative, International Association of Machinists, American Federation of Labor; Stanwood Hanson, assistant vice-president of the Liberty Mutual Insurance Company; Richard B. Cooper, assistant vice-president, American Mutual Liability Insurance Company; Donald H. Dabelstein, assistant director, Office of Vocational Rehabilitation; Seward E. Miller, M.D., medical director, chief, Division of Special Health Services, Public Health Service; and Clara M. Beyer, Paul Gurske, and Bruce Greene of the Bureau of Labor Standards, U. S. Department of Labor. My associate from the American College of Surgeons has been Robert Kennedy, M.D., of New York City.

exercises and few physicians seem aware of the benefits to be derived from competent physical or occupational therapy. Of particular significance has been our failure to recognize and treat the psychologic effects of trauma. In short, the average individual, disabled as a result of injury or disease, has too often been left to his own resources to cope with the physical, psychologic, social, and economic complications of his injury as best he can.

The physician's responsibility does not end with the healing of the acute lesion. It must continue throughout the period of disability and must include not only competent aftercare treatment of the lesion itself, but also all complications whether medical, surgical, or psychologic. Our aim should be the maximum restoration of our patients in the shortest possible period of time. In those cases where injury or disease precludes return to regular work we should advise our patients of the need and availability of vocational training as soon as it is prudent to do so.

The responsibility of the medical profession is best expressed in the statement of the basic principles for rehabilitation of the injured worker as developed by the Subcommittee on Industrial Relations and approved by the Regents of the American College of Surgeons*:

"Rehabilitation of the injured worker and his return to gainful employment should be the basic concept in an improved workmen's compensation system. We recognize that the disabled worker wants to be rehabilitated and restored to gainful employment. Settlement of cases on a basis of cash awards alone does not meet the continuing needs of the injured worker and his family.

"The need for higher standards and broadened benefits in workmen's compensation is recognized. Such standards and benefits should be developed against the background of presently known advances in physical restoration and vocational rehabilitation and adequate standards of individual and family need.

"Full utilization of all our potential manpower is essential to the welfare and strength of the country at all times. The discarding of disabled workers is an economic extravagance detrimental to the welfare of our country, wholly aside from the personal effect on the worker and his family. Solution of the problems of trauma requires cooperation, and not competition, between all interested groups and agencies. We must, therefore, improve and expand all activities, public and private, that aid in rehabilitation of the disabled worker.

"The medical profession should adopt the concept that the responsibilities of the treating physician extend over the entire period of disability to the end that the patient is restored to gainful employment at his highest attainable skill.

"Rehabilitation and restoration to gainful employment of the injured worker must begin with first aid and continue through the period of disability. In order for a physician to carry out this responsibility, it is essential for him to recognize the total medical problem of the patient in addition to his injury, as well as his personal problems. The physician must bring to bear on these problems all the skills and disciplines that science and society can offer, and utilize all community resources which can assist him in the accomplishment of these objectives."

Adequate medical treatment, including comprehensive care in the convales-

* "Operating Principles for a Modern Workmen's Compensation System" were approved by the Board of Regents of the American College of Surgeons in November, 1954.

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This paper was presented before a Joint Session of the Industrial Hygiene and Medical Care Sections of the American Public Health Association at the Eighty-Second Annual Meeting in Buffalo, N. Y., October 13, 1954.

cent period, represents but one facet of this highly complex problem. Space does not permit the delineation of the responsibilities of all the various groups. I should, however, like to discuss what our committee considers to be one of the most formidable road blocks to the restoration of the injured worker, namely, the workmen's compensation system itself. The major defect in our present system lies in the failure to appreciate the real needs of the injured worker, that is, his physical and psychologic restoration to as near normal as possible in the shortest period of time so that he may again return to work to provide for himself and his family. This need requires continuous and competent medical care from the date of injury to return to work and includes the use of modern technics not only in the definitive care in the acute emergency, but also in the convalescent period, including the use of physical and occupational therapy, special rehabilitation centers, and vocational training in instances where injury precludes return to regular work.

With our modern advances in medicine and in the ancillary fields, few injuries today are productive of true total and permanent disability, but the laws of administration have not kept pace with the advances in the numerous phases of medical care. Consequently, they make little or no provision for the recovery from serious injury which is possible in modern times. Instead of providing for the means for recovery, our laws pay benefits only for the actual injuries received. We have, therefore, developed over the years a highly complicated legalistic system of monetary awards based upon loss or disfigurement of an anatomical part. The greater the loss or disfigurement and the longer the period of disability, the greater in general the award.

Under this system the worker, fearing that his earning capacity and employability may have been jeopardized, naturally attempts to secure as much financial reimbursement as possible. It is also natural that he should reject offers of physical and vocational rehabilitation until that award has been obtained. In this respect he is all too frequently aided and abetted by the compensation attorney whose interest in the size of the settlement is not altogether altruistic. As a result our commissions are flooded with contested cases. Daily we see the parade of lawyers with their coterie of medical experts all attempting to fix damages in dollars and cents. The controversy which the system produces interrupts continuous medical care, often interferes with the procurement of the best medical care, delays, if not prohibits physical rehabilitation services, and completely disregards vocational training. Under this system the injured worker is left with a sum of money which he spends and a disability which he keeps.

It is the feeling of the Subcommittee on Industrial Relations that true rehabilitation is impossible under our present compensation systems and it has therefore developed and unanimously agreed upon a set of operating principles for a modern workmen's compensation system which we feel is essential for the attainment of the basic principles for rehabilitation of the injured worker. Time, however, has not permitted the presentation of these principles to the Regents of the American College of Surgeons for their approval. These principles are:

"Before the principles for rehabilitation of the injured worker as established by the Subcommittee on Industrial Relations of the American College of Surgeons can be attained a critical review of the current practices in workmen's compensation, medical care, and medical and vocational rehabilitation is required.

"Since rehabilitation of the injured

worker and his return to gainful employment is one of the basic concepts of workmen's compensation, changes in the attitude, laws and administration of this system are essential.

"It must become the duty of the compensation agencies to supervise the medical care of workmen's compensation cases with the view: (1) To determine the accuracy of the medical diagnosis. (2) To see that competent and continuous medical care is provided as long as medically indicated. (3) To see that adequate medical and vocational rehabilitation is provided when indicated. (4) To make sure that an injured worker has obtained the maximum recovery possible before making any final financial determination of permanent disability."

This work cannot be accomplished in the hearing room by lawyers or laymen, but requires the active participation of the medical profession. Therefore:

"To assist the compensation agencies in the performance of these duties, panels of impartial medically qualified experts should be established within the compensation systems. These panels should be utilized in the performance of the following functions of the agencies:

"Supervision of all medical care to insure the adequacy and continuity of medical care from the date of injury or disability, whether due to accident or occupational disease, to maximal restoration. To review and examine when necessary all seriously injured cases at an early date to determine: The need of consultant services by medical specialists; the need of medical rehabilitation; and the disabled person's work potential and the need for vocational rehabilitation.

"To establish standards for the provision of medical rehabilitation services to workmen's compensation cases.

"To determine the causal relationship of injury or disease in contested cases and the need of additional panels of impartial medically qualified experts for such determination if necessary.

"Attainment of the basic principles can be accomplished only by changes in the administrative rules of procedure or in the compensation laws themselves, or both. Provisions must be made for:

"Complete and continuous medical care from the date of injury or disability, whether due to accident or occupational disease, to maximal restoration without statutory limitation of cost or duration.

"Complete medical rehabilitation, referral to vocational rehabilitation services, and adequate financial support for such services until maximal restoration is achieved. Appropriate and medically prescribed return to work before maximal restoration is an accepted rehabilitation procedure and may also be carried out as on the job training or retraining."

The laws must provide for:

"Adequate compensation to insure family security during the entire period of disability and rehabilitation."

We also feel that there should be:

"Expansion of compensation statutes to broaden second injury fund provisions to further encourage industry to employ physically handicapped workers."

The law should afford:

"Coverage of all employees including those of small establishments and those engaged in occupations now considered as nonhazardous.

"To insure the maximum efficiency in administration the law should require the appointment only of experienced individuals as commissioners. These positions should be career appointments at adequate salaries and not subject to changes in administration.

"The costs of the vocational rehabilitation of the disabled worker should be borne either by industry or the state vocational rehabilitation program or jointly."

The committee believes that: "a compensation system so constituted would restore more efficiently and completely far more individuals to gainful employment and would at the same time eliminate the present highly controversial and expensive procedures and in the end would be far less expensive to industry, labor, the insurance carriers and the community as a whole."

A CORRECTION

To the Editor

As co-author of the article on "Endemic Goiter in Honduras" which appeared in the American Journal of Public Health for November, 1954, Vol. 44, No. 11, pages 1411–1415, and in behalf of Dr. Ernesto A. Borjas, who appeared as the senior author, it is requested that the entire first paragraph of "Material and Methods" be corrected to read as follows:

"A total of 12,644 individuals in 15 of the departments of the country were examined, all but 352 of whom were school children. The total number of school children in Honduras was estimated at 213,000 in 1953. The sample comprised slightly less than 1 per cent of the total population of approximately 1,370,000."

The original paragraph and the map which were prepared by me, and were not part of the original Spanish draft written by Dr. Borjas, should be disregarded.

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Propagation of Poliomyelitis Virus in Fetal Animals While in Utero

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The variety of leads to new research and diagnostic services suggested by this study will commend it to many who may be concerned with poliomyelitis control either in the experimental laboratory or in the field.

Interest has continued during recent years in the propagation of poliomyelitis viruses in animal hosts other than monkeys. Success has been achieved most readily with several of the Type 2 group of viruses following Armstrong's adaptation of the Lansing strain to rodents in 1939.[1, 2] More recently, however, Li and Habel[3] adapted the Leon strain of Type 3 virus to mice and Li and Schaeffer[4] adapted the Mahoney strain of Type 1 virus to mice. Of interest, also, is growth of the M.E.F.$_1$ virus in suckling hamsters by Moyer, Accorti, and Cox,[5] and in chick embryos by Roca-Garcia, Moyer, and Cox.[6] The present report is concerned with preliminary investigations of another method which seems to offer promise of usefulness wherein the virus is propagated in fetal animals while still in utero.

The fetus was first employed as an experimental animal for the study of infectious agents by Woolpert and his associates in 1936.[7] They showed that frequently the fetus is more susceptible to infection with a variety of bacterial and viral agents than is the adult animal of the same species.[8] As an example, influenza virus (Type A, strain PR8) grew readily in the guinea pig fetus,[9, 10] whereas the postnatal animal is known to manifest considerable resistance to infection with this virus. Preliminary attempts, however, to grow simian adapted poliomyelitis virus in guinea pig fetuses[7] were unsuccessful. Later in 1943, Schwab, Woolpert, and Hudson[11] in an extensive study of poliomyelitis virus in fetal animals, using eight strains of virus, both simian and rodent adapted, and four species of animals (mice, guinea pigs, white rats, and rabbits) again found no evidence of proliferation of any of the viruses in the fetuses. Because the adult cotton rat is known to be susceptible to poliomyelitis virus and because Schwab, et al., did not employ this animal in their studies, it seemed reasonable to assume that attempts to propagate the virus in fetal animals of this species might be fruitful. As will be seen later this assumption was correct.

The technic of fetal inoculation has been described previously[6a] and need be recapitulated here only briefly. Using aseptic precautions and ether anesthesia[12] the gravid uterus of the maternal animal is brought out through a mid-line abdominal incision, the number and position of the fetuses noted and the fetal animals inoculated into any desired portion of the body by needle puncture through the uterine wall. After inocula-

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tion the uterus is returned to the peritoneal cavity and the incision closed with sutures. Commonly the fetal animals are removed for study after a suitable incubation period by Caesarean section. Various tissues and organs are dissected out and assayed for virus content by subinoculation into appropriate test animals.

Materials and Methods

In this study three strains of Type 2 virus have been employed. Most of the work was done with a strain of Lansing virus obtained through the American Type Culture Collection and coming from the laboratory of Dr. G. C. Brown. Also employed was a strain of Lansing virus maintained in our laboratory for many years by mouse brain passage and a strain of M.E.F.$_1$ virus obtained some years ago from Dr. Hilary Koprowski. All three of these strains in our hands manifested a rather low degree of virulence for mice. Following intracerebral inoculation usually less than half of the inoculated mice died and many of these only after long incubation periods such as two or three weeks. A mouse adapted strain of Leon Type 3 virus kindly supplied by Dr. Habel was employed and also a mouse adapted strain of the Mahoney Type 1 virus obtained through the courtesy of Drs. Salk and Krech.

Since the cotton rat has a gestation period of 26 days, it is desirable to use animals about 21 days pregnant. At this age the fetus is large enough to be inoculated accurately while there still remains enough intrauterine time before spontaneous delivery for a suitable incubation period of the virus. It is possible to ascertain fetal age fairly accurately, for it is known that female cotton rats normally become impregnated within 24 hours after delivery of a litter of young. By noting and recording the date of birth of young, it is possible to select pregnant animals of any desired gestation age.

In the experiments reported here an incubation period of four days was arbitrarily chosen and employed throughout, except in two instances wherein the mother animals appeared to be in distress and it was feared that they would abort. In these cases two- and three-day periods were used and it would appear that these shortened periods had a noticeable effect on the results obtained.

Three routes of inoculation of the fetuses were employed—the intracerebral and two non-neural routes wherein the inoculum was deposited in the thoracic cavity and in the abdominal cavity. All three sites are readily located for the uterine wall is thin and translucent. Fetal tissues harvested and tested in mice for virus content were brain, thoracic viscera, liver, and skin from the abdominal surface. Tests were made by grinding the tissues in sterile nutrient broth to 10 per cent concentration and inoculating the supernatant fluid intracerebrally into white mice of 8–10 gm. weight.

Experimental Results

The first inoculations of Lansing ATCC virus into fetal cotton rats were made intracerebrally and quickly it became apparent that the virus had proliferated in the brain tissue. Test mice inoculated with pooled fetal brains from this first passage developed symptoms and died as early as three days after inoculation and were all dead by the fifth day. Serial passage of this virus has been accomplished through four transfers. In the second, third, and fourth passages some fetuses were inoculated in the thorax and abdomen and some in the brain. In either case the virus proliferated in the brain to approximately equal concentration. There was no evidence of virus growth in the other tissues tested, although in two

Table 1—Tests in Mice for Lansing (ATCC) Virus in Fetal Brain (Fetuses Had Been Inoculated Intracerebrally)

Fetal Passage Number	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
1	6	3, 4, 4, 4, 5, 5	6/6 *
2	6	4, 4, 4, 4, 5, 7	6/6
3	6	3, 3, 3, 4, 4, 4	6/6
4	6	3, 3, 4, 4, 5, 7	6/6

* Number dying over number inoculated

Table 2—Tests in Mice for Lansing (ATCC) Virus in Fetal Brain (Fetuses Had Been Inoculated in Thorax and Abdomen)

Fetal Passage Number	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
2	6	4, 4, 5, 5, 6, 11	6/6
3	6	3, 3, 4, 4, 4, 4	6/6
4	7	3, 3, 4, 4, 4, 4, 6	7/7

Table 3—Tests in Mice for M.E.F. Virus in Fetal Brain (Fetuses Had Been Inoculated Intracerebrally)

Fetal Passage Number	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
1 *	6	6, 9, 9, 13	4/6
2 †	6	5, 5, 5, 5, 9, 11	6/6
3	6	4, 5, 5, 6, 7, 7	6/6

* Fetal incubation period 41 hours
† Fetal incubation period 72 hours

Table 4—Tests in Mice for Lansing (Old) Virus in Fetal Brain (Fetuses Had Been Inoculated Intracerebrally)

Fetal Passage Number	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
1	6	3, 5, 5, 5, 7, 11	6/6

Table 5—Tests in Mice for Lansing (ATCC) Virus in Fetal Skin (Fetuses Had Been Inoculated in Thorax and Abdomen)

Fetal Passage Number	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
2	7	4, 16, 21	3/7
3	6	5, 13	2/6
4	6		0/6
4a *	6		0/6

* Fetuses inoculated with skin of passage 3

Table 6—Comparative Titrations in Mice of Lansing (ATCC) Virus (Fetal Brain and Mouse Brain and Cord)

Inoculum	Dilution	No. of Mice	Days Until Death of Mice	Total Deaths
Fetal brain	10^{-1}	6	3, 3, 3, 3, 4, 5	6/6
" "	10^{-2}	6	4, 4, 5, 5, 5, 6	6/6
" "	10^{-3}	6	5, 5, 6, 16 *	4/6
" "	10^{-4}	6	11, 15	2/6
Mouse brain	10^{-1}	6	4, 5, 11, 16	4/6
" "	10^{-2}	6	19	1/6
" "	10^{-3}	6		0/6

* Survivors killed at 30 days

instances skin tissue, following intrathoracic and intraperitoneal inoculation, gave evidence of the presence of small quantities of virus. This was interpreted as representing a residuum of the inoculated material. Similar proliferation in the brain was obtained with the M.E.F.$_1$ virus which has been passed through three fetal transfers and with our old laboratory strain of Lansing virus which has had one fetal passage (Tables 1–5).

Comparative titrations of virus in the fetal brain and the same strain in mouse brain and cord show that the concentration of virus in the fetus is approximately one hundred times that obtained in the mouse (Table 6 and 7). That the virus has retained its identity after fetal passage has been provisionally established by neutralization tests. Through the courtesy of Dr. William McD. Hammon a small quantity of hyperimmune anti-Lansing monkey serum was obtained. This serum neutralized high concentrations of fetal virus (Table 8). Still to be performed are other identifying tests such as failure of Types 1 and 3 sera to neutralize it and the production of typical poliomyelitis in monkeys by fetal virus. However, brains and cords of mice used to test fetal virus when subinoculated into new mice gave evidence suggesting that the virus had not undergone any change in the fetal passage, for the new test mice did not all die of the infection and those that did succumb had irregular and often protracted incubation periods. All mice dying in these experiments exhibited symptoms typical of mice inoculated with rodent adapted poliomyelitis virus.

There was no evidence of any intra-

Table 7—Comparative Titrations in Mice of M.E.F.$_1$ Virus (Fetal Brain and Mouse Brain and Cord)

Inoculum	Dilution	No. of Mice	Days Until Death of Mice	Total Deaths
Fetal brain	10^{-1}	6	4, 5, 5, 6, 7, 7	6/6
" "	10^{-2}	6	5, 6, 7, 9, 9	5/6
" "	10^{-3}	6	7	1/6
" "	10^{-4}	6	9, 13	2/6
Mouse brain	10^{-1}	6	5, 26	2/6
" "	10^{-2}	6	13	1/6

Table 8—Neutralization of Fetal Virus (Lansing) by Anti-Lansing Monkey Serum

Inoculum	No. of Mice Inoculated	Days Until Death of Mice	Total Deaths
Virus 10^{-2}	6	4, 5, 5, 6, 6	5/6
" 10^{-3}	6	5, 5, 6, 6, 8, 13	6/6
" 10^{-4}	6	5, 13, 21	3/6
Virus 10^{-2} + serum *	6	15	1/6
" 10^{-3} + serum	6		0/6
" 10^{-4} + serum	6		0/6

* Final dilution of virus after addition of serum

uterine transfer of virus from fetus to fetus, for no virus has been demonstrated in the brains of uninoculated litter mates. There was also no evidence that the procedure immunized the maternal animal. In two instances wherein litters were aborted on the second postinoculation day the mothers were saved and subsequently challenged by intracerebral inoculation with mouse brain and cord virus. Both animals died of poliomyelitis infection.

The success achieved with the Type 2 viruses was not duplicated when Leon Type 3 virus was used. In two cases wherein the virus was inoculated into fetal cotton rats and the brains harvested after four days of incubation, no virus could be demonstrated by intraspinal or intracerebral inoculation in mice.

At the time of writing of this report the first results were obtained from an experiment wherein the Mahoney strain of Type 1 virus was inoculated into fetal hamsters. Brain tissue harvested from these fetuses and inoculated intraspinally into white mice gave evidence of the presence of virus. The results of further studies with both the Mahoney and Leon viruses will be the subject of a later report.

Discussion

This demonstration that Type 2 poliomyelitis virus can be propagated in the brain tissue of fetal cotton rats offers to the experimenter a new animal for use in studies of this virus. Certain advantages in the use of prenatal animals are apparent. The most striking of these is the high concentration of virus produced which makes the fetus particularly useful for purposes of virus propagation. This high concentration, together with the large number of fetuses in a single litter (in these experiments an average of nine), makes possible substantial yields of virus material from one pregnant cotton rat. This feature might well be of interest to those producing poliomyelitis virus for antigen in the complement-fixation test or for the production of vaccine.

In this latter connection the findings of Kabat, Wolf, and Bezer [13] that fetal brain tissue when injected into monkeys does not produce an encephalomyelitis as does adult brain tissue is of particular interest. As is well known virus vaccines made from adult brain tissue frequently suffer from the drawback that encephalomyelitis may accompany their use in the recipient.

Another advantage in the use of fetal animals is that very small quantities of virus in the inoculum suffice to initiate growth of large quantities of virus in the fetus. This was shown by the fact that fetal skin, containing traces of virus, or fetal brain, diluted so as to contain only very small quantities of virus, when used as inocula gave rise to high titers of virus in harvested brain.

Thus, the fetus might prove to be a delicate test animal for control use on procedures of inactivation of virus or for primary isolation of virus from clinical material. Further, since the virus does not pass from fetus to fetus several tests might be conducted simultaneously in a single pregnant cotton rat.

What changes, if any, may be induced in the virus by prolonged fetal passage can be ascertained only by trial. It would not be unreasonable to anticipate that a better adaptation to the fetus might occur with the result that the virus might grow in non-neural tissues as well as in the brain. If this should happen, additional advantages in the use of the fetus would be apparent.

That success in the propagation of Type 2 poliomyelitis virus in fetal animals was achieved readily in this instance, where others had failed, simply by changing to a different host species suggests the possibility of similar success with Types 1 and 3 viruses if the appropriate animal is used. Support is lent to this suggestion by preliminary tests indicating that Type 1 virus will grow in fetal hamsters.

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Opportunities in Environmental Sanitation in a University Health Service Program

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A big university is a sizable community in itself, with its peculiar environmental hazards in addition to those of any community but with superior means and facilities to meet those hazards if there is the will to put them to work.

The responsibility of the college or university administrator to provide a health service for students has been recognized for more than a century.[1] In the beginning, the service may have been limited to medical examinations and clinical care; however, by the early part of the twentieth century, the public health role of the college health program was being accepted with environmental sanitation as an inherent and integral part of such a program.

At the organizational meeting of the American College Health Association in 1920, Dr. J. E. Raycroft of Princeton University advocated "centralized authority over campus sanitation, partly advisory and partly with power to act." [2] Administrators of college health programs have given repeated recognition to the problems of campus sanitation at their annual meetings. Similarly, working committees have been designated at each of the four National Conferences on Health in Colleges to study the role of university health services in dealing with the problems of environmental sanitation in the university community.

Recognition of and attention to problems of environmental sanitation did not automatically provide for adequate programs, even in health services of the larger universities. Moore and Summerskill [3] recently completed a study of 1,157 college health service programs representing 61 per cent of all the colleges of the United States. They report that less than 48 per cent of the health services are assuming responsibility for standards of sanitation; and of this number, in many instances the actual supervision and inspection work is carried out by city, town, or county public health units, not by the university health service. The survey further demonstrates that the scope of environmental sanitation programs is frequently very limited, being concerned principally with food services, student dwellings, garbage disposal, etc.

At the University of Minnesota, the importance of environmental sanitation as a part of the health services for students has been recognized since the beginning of the program in 1918. However, for many years the sanitation program followed the typical pattern of other universities in being concerned only with inspection of university operated food services, student housing, and swimming pools.

With a student enrollment of nearly 30,000 after World War II, the problems of environmental sanitation on the campuses of the University of Minnesota were so accentuated that the need for a

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much broader program was evident. This lead, five years ago, to the employment of a public health engineer on the staff of the university Health Service to organize and direct a program of environmental health. At about the same time, the Health Service was designated as a local health unit by the Minnesota State Board of Health, thus further involving the Health Service in its responsibility for environmental sanitation.

Following this designation, a Sanitary Code for the university was adopted by the Board of Regents. This code gave recognition to the action of the State Board of Health by designating the Health Service as the official health department for the university, responsible for the enforcement of all provisions of the Sanitary Code, and such rules and regulations as might from time to time be adopted. The purpose of the code was to establish the standards for environmental sanitation considered necessary for the reasonable protection of the health and safety of all students and staff members, wherever they might be participating in an officially recognized university activity.

The Sanitary Code provides for a university Sanitation Council. Its members are the representatives of those administrative and academic departments of the university most directly concerned with the operation of the program. The council serves in an advisory capacity; it also has the responsibility for drafting such rules and regulations as may be necessary. In effect the council serves as an advisory board of health, but with functions limited to the environmental sanitation program.

The scope of the program, as set forth in the Sanitary Code, includes all of the activities normally found in an environmental health program of a local health department. The usual activities of water supply sanitation, waste disposal, plumbing, housing, food and milk sanitation, insect and rodent control, are included; the standards are established by reference to the appropriate standards of the Minnesota State Board of Health, or recommended standards of the U. S. Public Health Service. In addition, during the past year the university administration has requested that the program be expanded to include radiological safety, industrial hygiene, and general safety. Since these activities are quite specialized, two university committees, one for radiological safety and one for industrial safety, serve in an advisory capacity to the Health Service.

The Health Service is an independent administrative unit within the university. The director of the Division of Environmental Health reports to the director of the university Health Service, who in turn is responsible to the vice-president of Academic Administration. There is a short and direct line of communication to the university administrative offices.

The university community, which the program serves, includes three completely separated campuses, a research center of 8,000 rural acres, seven agricultural schools or stations, a research institute, two permanent summer camps, several short-term camps, an airport, and two villages of temporary housing for 700 student families. The affected population includes approximately 19,000 students at this time, and a faculty and civil service staff totaling at least 8,000. The number of students is expected to increase to 30,000 in 1965.

The environmental sanitation program functions as a part of the university's health program in the same way that a division of sanitation would function in a city-county health department. A close working relationship is maintained with the physicians in the Health Service; free and direct communication is essential in the "team approach" to the health problems of university students and staff.

An illustration of this close cooperation is the case of a student who complained of headache, dizziness, and nausea when he was seen by a Health Service physician. Members of the student's family were also ill; the student was particularly concerned because on that day he was to take his wife and newborn infant home from the hospital. The physician, suspecting carbon monoxide poisoning, referred the problem to environmental sanitation. When the student's home was investigated, exceptionally high concentrations of carbon monoxide were found. Instructions were given to leave the infant in the hospital. Assistance was given to the student in having the gas company correct the installation and in requesting the City Health Department to provide public health nursing service for the family. Without this referral from the physician, it is possible that the lives of the student, his wife, mother-in-law, and infant daughter might have been lost.

In the same manner as a public health department works cooperatively with other departments of local government, the environmental sanitation program in the Health Service works cooperatively with many operating departments of the university. Assistance is given the Engineering Department in the review of plans, in the inspection of services, and in recommending correction of hazards in the physical plant facilities of the university. Also cooperating in the program are those departments responsible for the business operations of the university, the food services, the dormitories, the garages, shops, storehouses and warehouses, and the purchasing department.

The problems of environmental health on a university campus may be considerably augmented as compared to an average community. For example, a greater proportion of the population is eating out, a greater proportion is concerned with short-term rental housing, and in a sense all are in an industrial environment, many in laboratories exposed to biological, chemical or physical hazards. The students represent a fluid and transient population to be served and the academic and civil service staffs, in their almost daily activities of research and development, create environmental health problems new and varied in their nature.

Externally the Health Service works cooperatively with the official health, building, and fire departments of the political subdivisions in which the institution is located. Joint inspections are made of food service establishments and similar businesses which affect the health and safety of university personnel, but are under the immediate jurisdiction of official agencies. It also works cooperatively with and conforms to the regulations of the State Department of Health. At the University of Minnesota the Health Service is responsible for the inspection and approval of every dwelling in which a student lives. Consequently, the housing program includes inspection of some 1,200 private dwellings. In visiting individuals who rent to students there is an opportunity for health and safety education. Through the consultation and advisory services offered in the program, there is continued improvement in the sanitation and safety of student housing and greater compliance with the recommended standards of the official agencies.

Water supplies operated by the University of Minnesota range from hand-pumped wells to chlorinated deep well supplies serving a campus community of 5,000. There are the usual problems of well location, construction, disinfection, and maintenance. In addition, the university has a number of dual water supplies, and the usual potential plumbing hazards of submerged inlets and interconnections. Probably the University of Minnesota, with a large medical center which includes both hospital and re-

search facilities, may have a more acute problem from the standpoint of plumbing hazards than many cities. For example, a typical classroom laboratory bench, of which there are literally dozens throughout the university, may be equipped with 12 or more water operated aspirators. The hazard of back siphonage of toxic chemicals, pathogenic organisms, or radioactive waste materials is a real problem of considerable magnitude. The problem of supervising water supplies in buildings is further aggravated by the constant remodeling and changes in the use of building space. To this can be added the use of experimental or research equipment which may introduce plumbing hazards previously unevaluated.

The university, with both rural and urban campuses, has waste disposal facilities which include earth pit privies, septic tanks, Imhoff tanks, and a conventional sewage treatment plant consisting of sedimentation and sludge digestion. There are, in addition, problems of storm water drainage, design of out-fall sewers, and at present, that of persuading the university administration of the need for construction of a complete sewage treatment plant in order to abate a stream pollution condition. Within the buildings there are problems of disposal of strong acid and alkaline wastes; also that of disposal of liquid radioactive wastes, the danger of which has not been evaluated to date.

In the area of food sanitation, the university has well over 100 food services of all sizes. The Health Service is concerned with the review of plans and specifications for new equipment, and with the operation of both university and student owned or operated food services. The food sanitation problems associated with a large medical center require special consideration.

Typical food handlers' training programs have not been conducted. Instead, plans are being made to work with the training officer in the civil service department. Following the preparation of job analyses and a study of work methods for all positions in the food services, it is proposed to incorporate good food-handling practices into the work methods. It is hoped that, as people are employed and trained to do the job, they will learn to do it correctly from the beginning, and that this will be much more effective than attempting through special food handlers' training courses to undo bad habits.

Special pre-employment medical examinations are required of all food service workers and annual rechecks are required for the food service people working in student operated establishments. Here the public health responsibility of the Health Service is recognized as justifying the examinations on the basis of the opportunity for health teaching and preventive health measures rather than for any particular value in lessening the hazard of food infection. A problem which is anticipated but not evaluated to date is the hazard resulting from employment in the food services of students whose homes are in countries in Asia or Africa where infestation with intestinal parasites is prevalent.

The supervision of the food services in the fraternities, sororities, and student cooperatives presents somewhat unusual problems. University regulations provide that such organizations cannot proceed with plans for installation of new food service facilities or alterations to existing facilities without approval by the Health Service. This opportunity to work with architectural firms, alumni groups, and members of the active chapters has been most productive.

The operating activities of a large university are, to a considerable extent, industrial in nature. A civil service staff of approximately 4,500 persons responsible for the operation and maintenance of the university includes per-

sonnel representing many professions, trades, and crafts. An example of an industrial hygiene problem affecting both students and staff, which has been studied to a considerable extent is the potential hazard resulting from excessive concentrations of mercury vapor in the laboratories. This was first brought to the attention of the Health Service by a technician concerned with conditions in a small laboratory in a newly constructed hospital. Mercury was being spilled as a result of the daily use of Van Slyke apparatus. On investigation it was found that even though this hospital building had been in use for less than four months, the contamination in the laboratory was such that concentrations of mercury vapor in the air were three or four times the maximum allowable. On investigation, similar conditions of excessive mercury vapor concentrations were found in the laboratories of ten or more different departments of the university. These laboratories represented a wide range of structural and operational conditions. As a result of this experience, a set of recommendations that permitted correction of the problem was established.

It is significant that mercury vapor problems were found in such academic departments as physiology and physiological chemistry. This demonstrates a characteristic of a university community that must always be considered: teaching and research personnel, in many instances, may need to be protected against the potential health hazards that result from the work they are carrying on. They work with materials and create situations which present health hazards that they surely must know about, but fail to recognize or apply to their own situation. It is not safe to assume that the physiologist is protecting himself against toxic gases, vapors and fumes, nor that the radiologist is going to protect himself adequately against the danger of ionizing radiation.

A typical problem of researchers concerns the practice of constructing and using laboratory benches in walk-in coolers where volatile toxic chemicals are stored. The walk-in cooler very conveniently meets their need for low temperature work space, but the mechanical problems of providing ventilation to eliminate the health and safety hazards, while at the same time permitting the cooler to be operated properly, is a problem not yet solved.

In addition to conventional industrial hygiene problems, the Health Service has been concerned during the past year with a program of general safety. The university participated with the National Safety Council in a study to determine the nature and extent of injuries resulting from accidents to students off and on campus. Examination of the reports of injuries treated by physicians in the dispensary reveals a significant problem, much of which might be prevented by a safety program attacking the hazards to which students are exposed. It was somewhat surprising that 19 per cent of the injuries occurred in the students' residences. It seems that more work in home accident prevention could well be done with students in spite of the fact that the housing inspection program, carried on by the Health Service, is devoted in large part to home safety.

The significant number of injuries occurring in laboratories justifies consideration of working conditions and student practices in this area. Similarly, the relatively large number of accidents occurring elsewhere in university buildings and on the grounds further demonstrates the need for a safety program.

During the past year, the Health Service has cooperated with the Industrial Safety Committee of the university and the Office of Insurance and Retire-

ment, in compiling and analyzing reports of injuries to civil service personnel. Again, there seems to be a safety problem amenable to attack through safety education and survey procedures. To study and work with the university's problem of industrial hygiene and safety, the Health Service employs an industrial hygiene engineer and this year the administration has approved employment of a safety engineer to be a part of the environmental health team of the Health Service. As yet the work in industrial hygiene and safety is on a service basis, and devoted entirely to requests for assistance. It has not been possible to conduct a survey of the campus to determine the total nature and magnitude of the problem.

An area of specialization in environmental health which takes on considerable prominence in a university program is radiological safety. At the university, the Health Service was assigned, a year ago, responsibility for this program. The sources of ionizing radiation are quite varied. Conventional x-ray installations are found in mechanical and electrical engineering, chemistry, geology, mining, and a number of other departments as well as the medical school. There are high intensity radiations from a Van De Graff machine, a linear accelerator, and a cobalt teletherapy unit, in addition to the usual radium and radon sources.

Even more important, and rapidly increasing in magnitude and scope, is the use of radioactive isotopes. At present, more than 20 different university departments are actively engaged in radio isotope research work. These departments extend from the medical school to such departments as chemistry, physics, mechanical engineering, agronomy, and soils engineering.

A continued program of area monitoring is carried on by the Health Service, which also has the responsibility for personnel monitoring consisting of a film badge program for nearly 200 persons—the responsibility of a health physicist.

The Health Service has the responsibility for medical examinations of all personnel who begin work with sources of ionizing radiations. Following the initial examination, reliance is placed on environmental control to determine the extent to which subsequent medical examinations are to be scheduled. An inherent part of the radiological safety program is concerned with problems of ventilation, air circulation, maintenance and repair of plumbing, protection of water supplies, repair and maintenance of laboratory furnishings, and the operation of incinerators for waste disposal. In all of these situations environmental health personnel have a close working relationship with the engineers of the Physical Plant Department of the university. As in all of the other activities of the environmental health program, close cooperation with other departments is absolutely essential.

The environmental sanitation program offers a training facility on both a formal and informal basis. Several members of the staff have appointments to the faculty of the School of Public Health. They offer courses to students at the graduate level and participate in courses offered to university undergraduates. The everyday experience of working with problems and situations is invaluable in the classroom; more important is the fact that constant contact with the entire physical plant provides a full-scale laboratory which can be made available to students. For engineering students specializing in environmental sanitation, such facilities as the milk pasteurization plant, food services, water supplies, shops, laboratories, and radiation sources offer first hand learning experiences.

Teaching opportunities, arranged through the School of Public Health, extend to a large number of other de-

partments of the university. Students in home economics, veterinary medicine, physical education, mechanical engineering, architecture, home nursing, as well as laboratory and x-ray personnel, may receive instruction from the environmental sanitation staff, and have opportunity for field observation right on the campus.

A special advantage, while working with the multiplicity of problems characteristic of such a program, is the opportunity to benefit from the knowledge and experience of many experts. Regardless of the practical problem with which a person may be faced, there is good chance that on the campus somewhere there is an expert who will freely and unselfishly make his services available. Only through such excellent cooperation can a small staff cope with the complex and varied problems of environmental sanitation that are characteristic of a university community.

ACKNOWLEDGMENT—Obviously, such a program could not have been conceived, initiated, or promulgated without the vision of those administrative persons responsible for the departments in which and with which the program operates. The writer wishes to express acknowledgment to Ruth Boynton, M.D., director of the Students' Health Service, and to Gaylord Anderson, M.D., and Herbert Bosch, M.P.H., in the School of Public Health for the encouragement and the ever-present advice and consultation that has been so readily available. Acknowledgment is due to the administrative heads of the many university departments with which the program operates most intimately.

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Yale Expands Its Facilities

Through a grant of $3,160,000 from the John A. Hartford Foundation, Yale University is able to embark on a long-term program of research and training in biophysics. Of the total grant, $460,000 is for the construction of a biophysics laboratory in Valhalla. Here, research programs to be carried on are: studies of the immunizing properties of inactivated preparations, involving the study of the reaction of animals to challenge doses of virus and bacteria, and of the serum antibody structure; studies of plant viruses; basic studies in food preservation, which, initially, would deal with bacteria, enzymes, and parts of living cells rather than practical tests on foods.

The remainder of the grant will provide an annual sum of $180,000 for 15 years. Teaching activities will be carried on at New Haven, research activities both at New Haven and Valhalla. A new department of biophysics has been created under the chairmanship of Ernest C. Pollard, Ph.D., professor of biophysics, the holder of a Presidential Certificate of Merit for his work in radar.

Significant Trends Affecting the Education of Blind Children

GEORGIE LEE ABEL

> ***"Often the public health nurse, the social worker in a rural area, or the family physician may be the first person to talk to parents (of a blind child) after they become aware of their problem. Frequently, it is the manner in which (these people) talk with these parents that influences their desire to seek and take advantage of specialized help."***

All areas of the education of exceptional children are receiving consideration from national public and private organizations. One needs only to examine periodicals from various professional organizations and to observe the content of programs developed for their conventions to be aware of the increased interest in more effective planning for handicapped children. Blind children naturally reflect this increased interest, and certainly profit from all the help gained through cooperative efforts in their behalf. They represent only a small number in the total population of handicapped children.

Those of us who have worked in this small area of education for exceptional children can look upon the last 15 years as the most challenging and perhaps the most far-reaching in their future potential affecting the education of blind children. The American Foundation for the Blind has attempted to meet many of these challenges by combining its research and consultative efforts with the direct service people at the local, state, and national levels. This representative of the foundation considers it an honor to work closely with state and national professional organizations who request help in their programs planned to enrich the lives of all children. A constructive education for blind children includes all the goals of a good program for so-called "normal" children, plus additional considerations resulting from the fact that these children are blind. This type of education is expensive but, viewed in terms of its relation to the well adjusted and independent functioning of the blind adult, it is a very reasonable expenditure of funds. Our question today is then—what are the trends which should make it possible for us to realize our goals to a greater degree than we have achieved in the past?

There Are More Young Blind Children Known to Schools and Agencies Today

Blindness among infants and very young children is on the increase today, and while we hope for a decrease in the leading cause of blindness among infants, we are faced with the responsibility for the challenge of the present as it is, and the future planning for the blind children and their families as they strive for the best possible total educational goal. The desires of these families for their children should include happiness and comfortable living in their own communities as respected blind adults.

It does not seem necessary to discuss in detail here the possible implications of retrolental fibroplasia, the chief contributing factor to blindness among

some very tiny premature infants.* With much larger numbers of children detected at an earlier age because of retrolental fibroplasia, among other conditions, there are naturally greater problems of an administrative nature in meeting the needs of all the families of these children, but there are also more opportunities for planning effectively a suitable type of service for each child. When it is possible to know the children at an earlier age, and when medical and social service personnel are coordinating their efforts, the amount of vision which the young child has, and its possible use, can be determined much sooner. This means his family can have help in meeting the needs of a child as he is. Parents can be helped to interpret the environment for the young child according to his needs and abilities and through this procedure the early education of the child is actually beginning. Of perhaps the greatest importance, the parents, at a much earlier age for the child, can begin the challenge of accepting their child with his visual handicap. They can then be given more time to explore their feelings. As the child grows in a family which he knows and understands, the parents are also growing in their ability to meet the more important challenge of providing a life of happiness and productivity for their child. This earlier planning involves the community as well. Thus the family and the citizens achieve the important groundwork which makes for a more constructive approach toward the effective functioning of the future blind adult.

Perhaps our greatest problem in attempting to meet the needs of this large number of very young blind children today can be found in the effect that the numbers may have on us as we see them in our classes and schools. Because there are more of them in a group, we may find it harder to observe each child as an individual. In our concern for this unusual situation and in our concern about possible problems of children being placed all too often in crowded classrooms, we may find it difficult to be as objective as we would like. Our rich experience, it would seem, in this large number of children might be in our desire to find and evaluate other resources, and in our cooperation in more research projects with this larger sampling. The greatest gain of all might come in our own attitudes toward these children and their families as we attempt to work out problems with them, and in our observation of the behavior of a greater number of blind children in different types of family situations.

Constructive Help for Parents of Blind Children

Never has there been a time in our history when parents of handicapped children have shown more desire and more enthusiasm for cooperation in all types of service. Their concern, their search for real and individual answers

* Material concerning retrolental fibroplasia or other causes of blindness among children from the medical, sociologic, psychologic or psychiatric considerations, may be obtained from either the National Society for the Prevention of Blindness, 1790 Broadway, New York, N. Y., or from the American Foundation for the Blind, 15 West 16th St., New York, N. Y. The National Society for the Prevention of Blindness will be primarily helpful in the medical references and in its statistical studies. The foundation will be able to make available its professional library of research studies and other types of reports concerning programs or current projects, particularly of a sociologic or psychologic nature. Since the two organizations maintain a constant referral service, requests if misdirected should eventually reach the correct source of information.

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to their problems, and their confusion resulting from occasional uninformed counsel, perhaps provide the professional worker today with the greatest challenge that he experiences. If the educational, social work, and medical personnel pause to question the effectiveness of their services, there might be a temptation to question whether or not this great frustration of parents might not be the result of the inadequacy of their service. If this leads to the development of more worth-while services, it can be a healthy type of reaction. In any event, the parents are looking to all of us for help, and those who serve must draw heavily upon their professional skill, their knowledge gained from research, and their cooperation with all other professional services in order to find constructive answers.

Our national organization is attempting to meet the needs of parents of blind children in various ways. First, it attempts to work closely with general and specialized social agencies, hospitals, schools, and various types of private, professional organizations concerned with meeting the needs of parents of the blind. It has developed some professional and some inspirational types of literature with the idea of helping both the parents and their professional workers. It has called national conferences with the hope of clarifying information and developing constructive procedures, and it has supported research and fellowships for students where their study might seem promising in future programs. It has also provided consultative service to organizations and schools set up to meet the needs of blind children. It has developed courses in the preparation of workers for and teachers of young blind children in various colleges and universities throughout the country.

Perhaps the greatest service that can come from a national organization such as ours results from its referral service in various localities for parents in need of help who do not know where to turn. The large number of letters from parents everywhere provides this organization with written statements of their problems and in many cases their feelings concerning their problems. As our consultants know the various services and develop an active directory of them, parents whom the foundation never has the privilege of knowing are able to find their local resource which is the best and most appropriate for them.

Perhaps the violation of certain basic principles in meeting the needs of children causes the greatest difficulty for the parents. While there are many principles which could be listed, these seem to be the most frequently stated ones by the people who have worked closely with blind children and their parents. It is obvious that many of them reflect general knowledge which has been stated frequently, but all too often may have been forgotten when services have been inaugurated. These seem basic to all programs:

Blind children, as all children, need to be loved, to feel secure in a family setting for as long as possible especially in the early years, and to have an opportunity to grow in an environment which they can understand and appreciate according to their needs and abilities.

Parents of blind children are able to function more effectively if they can have the information concerning their child's eye condition as soon as possible after the physician feels sure that their child will live and grow as a blind child. These parents should then be referred to the best possible source of help as soon as they are able to take advantage of the most appropriate counsel for them.

Services to blind children and their parents seem most effective when set up on an individualized basis in order to determine the needs of the child and his family and in order to provide the necessary amount of time for parents to grow in their own realization of their challenge in providing a happy and useful life for their child.

Agencies and schools serving blind children and their parents should strive to provide per-

sonnel in the counseling service and in all other types of help who are qualified to serve either as social caseworkers or child development specialists, particularly if they are engaged in a continuing direct service contact with the children and their parents. These people should strive for a positive approach to the problems accompanying blindness and should be able to interpret this for the personnel having occasional contacts with the children and their families.

Where parents' groups are organized either by the parents themselves or by the schools or agencies, the professional personnel should be ready and available for counseling and help for these groups when this is desired and needed. Professional people should not let the simple gratitude of the parents mislead them in their judgment of the total value of the group experience for the parents. They should instead attempt to grow in their own abilities to analyze the productivity of the group experience in terms of the individual needs of the parents, and to seek with the parents who need additional help the most appropriate service which seems indicated.

In all of our help to parents, we can strive to be supportive and constructive, recognizing that many times we must look to others for more helpful answers. Perhaps our greatest strength might be in our ability to recognize problems which we cannot solve. Of one thing we are sure—most of the blind children who have had the opportunity to profit from a constructive preschool service are adapting to their school programs with much more progress than was previously true.

Changes in the Patterns in the Education of Blind Children

There are three basic patterns in the education of blind children found in the United States today. These patterns vary one from the other, and each varies greatly as it is functioning in different localities. Some of the present situations are pointed out here in the hope of providing a picture for the people outside the area of the education of blind children so that they may observe more intelligently their programs in their own states. In so doing, they are not only becoming better citizens, but they are also showing more interest in one small group of handicapped children.

The education of blind children in a residential school for the blind is the oldest type of program known and it is still responsible for the education of the greatest number of children. These schools have changed greatly in that they have secured in most states much more functional and attractive physical plants. Most of them have met the educational requirements set forth in their states as applied to public schools, and some of them have far surpassed the minimum requirement. Their problems, as in the case of all schools, are mainly in their crowded conditions and in their difficulty in securing qualified personnel. Most of these schools are state supported, and their teachers are asked to meet the same requirements as set forth for all other schools with additional certification in the area of special education which they represent.

This education of blind children set up in a residential school for the blind was oriented largely on the theory that bringing these children together at one school would provide a more intensive and complete educational program, and also would make possible more equipment used by a greater number of children. It was also felt that the entire program would be administratively easier to conduct. There were sociologic problems which were not considered at first. They are, however, recognized by many of the heads of these institutions and there are serious efforts on the part of many of the schools to try to enrich the programs by providing contacts outside the school where blind children might participate more effectively with sighted children, where community experiences might contribute to the school program, and where sighted chil-

dren might be invited to the school for more frequent participation. Of great importance, the schools are recognizing the significance of more constructive home and school relations, and the children in many places are being encouraged to return to their homes more frequently on visits, and their parents are asked to visit their children at the school more often. More of the teachers and other professional workers are asked to take advantage of additional professional preparation courses specifically affecting the education of blind children, and some workshops and conferences are conducted for house parents and teachers on the campuses of some of the schools.

Perhaps some of the greatest problems have come from the increased enrollments and the increased costs of qualified personnel and of maintaining the institutions. Perhaps due to all this, there is greater need than ever before to clarify the functions of these schools, to determine which children, on the basis of all information individually appraised, need the school, and make it possible for these children and their families to take advantage of the school program.

The second largest number of children, and this number by no means approaches the number served in the schools for the blind, is found in the specialized programs in the public schools. In this program, one teacher is assigned to one school system and the children in a locality are transported to this particular program for blind children. This pattern is growing today with the increased desire on the part of parents to want their children to remain in their own communities and with the growth of special education programs in the various cities in the United States. There is an attempt to serve more handicapped children of varying types.

As this program was originally set up around the turn of the century, it was quite protective of the children and it meant that the blind boys and girls assigned to the special room, or "braille class" as it was most frequently called, were too often limited to the contact with one teacher in their entire program. If they were given the opportunity to participate with the sighted children, it was for a very short time, and the children were more apt to be looked upon as visitors in the regular classes than participants.

As this program was originally conceived, it represented a better sociologic approach in which contacts with sighted children could be achieved as a preparation for more complete and comfortable integration in their communities. It was very difficult at first to achieve a complete educational program, including all of the areas involving laboratory subjects and those which require more individual help from the regular teacher, such as physical education, industrial education, arts and crafts. The improvements in the specialized program for blind children in the public schools have come about because of the ability to achieve more interpretation with the teachers in the regular classrooms, and to secure more opportunities for the children in all types of different classroom situations.

The older type of program which still exists in some places is likely to be the "special room," the "braille class," where the "cooperative plan" as it is called, is practiced. In this plan the teacher of the blind children does most of the planning and much of the scheduling of the activities of the blind child who goes out to the regular classes. The more recent program is often referred to as the "resource room" where the blind child is enrolled in the regular class, and returns to the specialist teacher for help when he needs it. This resource teacher is one who is available

to the other teachers who have blind children in their classes; she prepares comparable text and reference materials in braille for the blind children; and she actually teaches the blind children certain skills and counsels them as often as their needs for this help require her service.

In cities where funds have been insufficient, it has been difficult to provide material and equipment in large enough quantity for the use of the small number of blind children in such a program. In some of these cities, volunteer braillists and disc and tape recorders have contributed valuable service to blind children who otherwise would have been without books and other references necessary in their school program.

The "itinerant" plan of educating blind children is the newest pattern, and exists particularly in a few large rural states, in other larger states and cities where older blind children can function with greater independence, and in some states where there is sufficient staff at state level to provide a continuing and rather definitely scheduled service for the families and schools. This pattern makes it possible for an occasional blind child to remain in his own school district with certain necessary services brought to him by qualified teachers or consultants. This system has occurred where there was not a sufficient number of pupils to justify the expense of hiring a teacher and setting up a specialized program or resource room in a specific school. It has also been in existence for some time in the case of high school blind pupils who have returned to their homes either from the residential school for the blind, or who have moved from a city that had a program to a locality which could not offer such a service.

This program is really quite new, and for that reason it is considered to be one which should be set up only when there is professional assistance available, and where there is continued evaluation and follow-up in order to determine whether or not sufficient help is available. It certainly does demand greater independent functioning for the blind child and expects more help of his family. For certain children, however, it has worked successfully, particularly when they know their braille skills and are able to interpret to a greater extent their educational needs, and when they are able to direct their reader service and seek guidance and counseling service as needed.

The problems and scope of this program are not really very well known, and we do little more than recognize its existence in many places. We know, however, that where it is constructively set up, it works well for older children, but for elementary children it must be considered with greatest care by those responsible for it. The greatest value lies in its possible complete integration of the blind child who is able to follow this program and his greater independence. It is unfortunate, however, that it most frequently is developed without enough help simply because parents are unable to locate another satisfactory service.

It seems most significant in the education of blind children that all people recognize that we have need for all three of the patterns of education that have been described, and that in order to meet individual needs of the children and their families, variations in the patterns must be made in the interest of a flexible and appropriate education for each child. If we can bring about more cooperation of specialists representing the different types of programs, and if we can become more skillful in our interpretation to others in both educational and social organizations, we may arrive at a time when all of our energy can be devoted to the best interest of blind children rather than to our own problems in feeling that we must justify one plan against another.

On the Basis of Trends We Observe the Future

Professional people who have worked in the area of the education of blind children for the past 15 years have learned many things, and should have gained great inspiration to enable them to face the future with some competence as well as some careful reflections on the contributions of the past. Perhaps due to the increased numbers, or the more effective case finding in some areas, many opportunities for effective service have presented themselves. As one attempts to list the professional gains for blind children in the future, it is only natural to recognize a sharp reminder that they were born of tragedy, not of our choosing but in our society. We, therefore, recognize the implications of blindness as they may affect each individual, his family, and the citizens with whom he lives and works each day. If, however, we would plan more constructive programs for these blind children, we can develop a more positive approach to each blind individual, permitting him to show us what he can do by providing an environment which is real for him and which we accept because he understands and appreciates it. We would, therefore, attempt to free blind individuals from many of the generalizations of the past.

The gains listed here are making their appearance in various sections of the country:

Research affecting blind children, with some results already available and other unpublished studies quite promising in their future contributions are difficult to overestimate as they may affect future planning. Eye research is always of greatest concern to both professional and lay people, and we can feel proud of the efforts both in ophthalmology and other medical areas. We also can observe with pride the information concerning prevention and public education. Perhaps future research in developing more effective attitudes in all people in regard to prevention and understanding of the importance of the use of the eyes will be forthcoming.

The important sociologic and psychologic research has been most productive. Some very effective work has been done in parent-child relations. The implications of this work should contribute richly to our future educational programs. Likewise, research concerning adjustment to blindness and attitudes toward blindness have been undertaken in the past few years with a great deal more interest. Other research is under way in the possibilities of bringing about significant changes in attitudes through more effective information sharing technics. Clinical psychology will continue to contribute much in its carefully set up studies of individual and group therapy with blind children and their parents. Psychiatry also has shown much more interest, and with so many more blind individuals receiving help from psychiatrists, surely we can learn much more concerning the emotional needs of children who are blind. Sociology is also a rich source of more contributions in the future, affecting blind individuals and their effective relationships in society.

Teacher preparation facilities are improving throughout the country. Because the number of teachers of blind children will always be small as seen in the total population of teachers, there will never be a need for a great many teacher preparation centers, but this fact makes it even more important that these few centers become outstanding. Also, it is especially interesting to know that the departments for the education of exceptional children are accepting more responsibility for the planning of constructive courses in colleges and universities. Scientific studies are under way at the present time which should help evaluate and set up courses in the education of blind children as is true in all other areas of the education of exceptional children.

More cooperative planning in the interest of screening, case finding, evaluation and effective placement is being accomplished in some states. By pooling efforts and clarifying services more blind children can be helped. This type of pooling of resources should certainly make more effective treatment of children with multiple handicaps. It should also make it possible to secure an educational program for each child based upon his needs and potentialities as well as a shift from one type of program to another when the child's needs or his family situation may change.

The establishment of more preschool programs for blind children in the different large cities and states throughout the country represents perhaps the greatest single step in more

effective educational planning in behalf of all blind children. Our organization was privileged to call two national meetings dealing with the preschool blind child, and has since continued to try to serve as a clearing house for information in this area. The foundation continues to make the service of a full-time consultant in this important preschool area available to schools, agencies, hospitals, as well as parents' groups, when their requests can be met in a rather heavy schedule.

There is evidence of an increased desire to serve blind children and their families expressed by general health and welfare agencies. The type of letters which we have been receiving have contained questions that ask for more information on ways of meeting the needs of these families. Often the public health nurse, the social worker in a rural area, or the family physician may be the first person to attempt to talk with the parents after they become aware of their problem. Frequently, it is the manner in which the nurse, social worker, or physician talks with these parents that influences their desire to seek and take advantage of specialized help. Through the orientation of the people in general agencies, all blind individuals should receive a much better service because they do not have to wait so long for help. We have known too many cases in the past where the time lag was much too long for the stability of the families before a specialized worker was able to get into the home. Often, too, the help that was really needed was supportive in nature rather than informative. The general worker can contribute much to the families, and on that basis can interpret much that is constructive for the specialized worker where the state provides this service. The orientation needed by these workers is largely in their attitudes, and in their knowledge of what is good for all children. Many general and specific local agencies are setting up directories of services, and can be of great help to these workers in rural areas, and certainly private organizations such as the American Foundation for the Blind can refer any worker to an appropriate source for information, or to an agency which can offer help in the local area where the family lives.

Finally, blind children will be the best ambassadors in the future as they have been in the past. We find over and over again that where people in general education have been permitted to know blind children in regular public schools they have learned to think of them as individuals. We also find blind graduates of residential schools who have moved out into society as efficient adults and have become active citizens in their communities. Perhaps the largest contribution of the present can be found in the parents who, when they are given sufficient help as soon as they need it, are showing that they are capable of accepting and understanding their children. Our final question is: Can we, the professional people, work with the parents and their children in a manner which truly pools our resources in behalf of blind children? In so doing, we contribute to a rich educational program which meets each child where he is and thinks of him as a part of a family unit and a participating member of society.

Fiscal Research in Public Health

GEORGE JAMES, M.D., F.A.P.H.A.; DANIEL KLEPAK; and
HERMAN E. HILLEBOE, M.D., F.A.P.H.A.

In the New York State Health Department the desire for governmental services of high caliber is combined with an emphasis on effective use of the state's resources. An indiscriminate cut in funds allocated to public health threatens the destruction of a long-time investment in trained personnel and established operating efficiency. To serve the first aim and to prevent the second end result, a program of accounting and performance budgeting was applied experimentally to a tuberculosis hospital. The principles exemplified will be found widely adaptable.

Recognizing that the costs of public health programs and medical research will probably continue to increase, and that the amount of money available to government for these services is limited, the New York State Department of Health, in cooperation with the Legislative Commission on the Fiscal Affairs of State Government, undertook a study of Health Department accounting and budget concepts. Such a study would: (1) be useful in controlling costs; (2) provide to supervisors and administrators at all levels more effective tools for the measurement of alternative courses of action; and (3) assist in the evaluation of performance, the development of priorities, and an understanding of the true costs of specific programs.

The Homer Folks Tuberculosis Hospital at Oneonta was selected for the first phase of this study. It was agreed that before the installation of a department-wide program, it was necessary to test the feasibility of basic principles on a small and controllable scale. A tuberculosis hospital seemed to be the ideal proving ground because: (1) it represented an essential governmental service that could be isolated for study; (2) it performed a service which was generally agreed to be one of high quality; (3) it had programs and activities which appeared to represent a fairly complex health program; and (4) expenditure for hospital care represents so great an outlay of state funds that any concepts developed by the State Health Department could be used in other departments providing institutional care.

The study was conducted by one of the authors (DK), the commission furnishing the necessary funds, technical consultation, and guidance. The Department of Health supplied the expert advice of the staff of the Division of Tuberculosis Control, the hospital, and the Office of Program Development and Evaluation, in addition to the Offices of Business Administration, Planning and Procedures, and Personnel Administration. An interdepartmental advisory committee composed of one of the authors (GJ) and representatives from the Division of the Budget and State Comptroller's Office was established to set the scope and limitations, and to provide general supervision for the study.

Principles Tested

The principles tested at the Homer Folks Tuberculosis Hospital were part of the plan to develop a program accounting and performance budgeting system that would provide financial information regularly and inexpensively

to key administrative levels of state government. The true costs of programs and activities should be made routinely available to those people who must make financial decisions (or public health decisions having fiscal significance). This is a basic requirement for sound accounting and budgeting.

The specific concepts tested were: (1) the accumulation of costs by program, function, or area of responsibility; (2) the separation of costs into variable and fixed parts; (3) the relation of variable costs to workload; and (4) the use of standards for planning activities and appraising performance.

The first principle listed contemplates not only that all costs relating to a program, but also all costs relating to a function or an area of responsibility within this program should be segregated. Thus, costs for food service are worth listing separately, since food service is a distinct function of the hospital and is under the supervision of one individual, the supervising dietitian. Since this person supervises all personnel and authorizes all expenditures in the operation of the food service center, she can be held responsible for the control of the costs of carrying out these activities. Costs are controlled by fixing responsibility on one individual. This is a significant principle. Costs themselves can never be controlled; it is only by controlling the action of people that we can hope to influence costs.

Thus, if cost data are successfully accumulated by function or area of responsibility, we can use their figures as "building blocks" to determine the true costs of programs. The outstanding advantage of this approach is that it enables all levels of administration—from the supervisor to the commissioner—to relate functions and services to expenditures. This places these administrators in the best position to choose between alternatives, appraise results, and develop both short- and long-range plans.

The second principle to be tested involves the separation of costs in each area of responsibility into variable and fixed components. A variable cost is one which increases or decreases in accordance with the changes in the volume of work units produced. Thus, the cost of raw food is a variable cost, since it changes with the number of meals served. Other examples are the costs of soaps for laundry purposes, travel expenses for outpatient clinic sessions conducted, and film for x-ray examinations performed.

Fixed costs, on the other hand, do not vary directly with the volume of work produced, but have a minimum below which the unit cannot function properly. For example, as long as the Homer Folks Tuberculosis Hospital is in operation, a director must be employed. The director's salary, therefore, is a fixed cost. As long as there are hospital grounds and buildings, they must be maintained, and the salaries of groundsmen and other maintenance personnel are fixed costs. Other examples are the salaries of the supervising dietitian and members of the housekeeping and administrative staff. These fixed costs are not directly related to workload as are the variable costs. Rather they are related to a time period, such as a salary per year, which must be paid regardless of the volume of the patient load.

The third principle recognizes a direct relation between total variable costs and volume of work produced. This re-

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sults in the development of variable unit costs. The development of variable unit costs can be very useful for both program planning and appraisal of performance. It simplifies budgeting, since the administrator may quickly determine what added costs will be required by multiplying the cost per unit by the number of units of work he plans to produce in a specified period. In order to control expenditures and appraise performance, the actual expenditures are then compared with those budgeted. For instance, if an allowance of 30 cents per meal had been budgeted for raw food, but in actual experience the cost turned out to be 35 cents per meal, attention is directed to the need for a special examination of the problem and possible corrective action.

The fourth principle involves the testing of certain "standards" in planning activities and measuring performance. In many fields of administration standards can be established that will relate variable costs to work units (standard variable costs) or fixed costs to periods of time (standard fixed costs). Special consideration was given to the development of suitable standards at the Homer Folks Hospital. Ideally, standard costs should be based upon standards of performance which reflect the agreement of qualified individuals on what is good performance in any activity. Although there is agreement on the general standards for the medical program of tuberculosis hospitals, there are no series of widely accepted standards for each activity.

Conducting the Study

All the field work involved in this study was done at the hospital during the months of July and August, 1954. While most of the data tabulated were derived from records of expenditures and consumption reports, the opinions and judgments of hospital officials were reflected in the results. Similarly, wherever publications, such as those of the American Hospital Association or the National League for Nursing,* were pertinent and available they were used.

A complete description of the test installation of the program accounting system is being reported elsewhere.[1, 2] The technical accounting details are of interest primarily to those individuals working in the field of business management. The following listing of the major procedural steps should be sufficient to orient the reader: (1) determination of cost centers or departments of the hospital (Table 1); (2) definition of units of measurable work (Table 2); (3) segregation of variable and fixed costs; (4) development of unit costs for variable costs; (5) development of total allowances for fixed costs; (6) development of standard costs; and (7) preparation of forecast budget.

Utilization of Program Accounting Data—The financial information and performance data obtained from this program accounting system have many potential uses. They may be used for planning programs, controlling the execution of activities, and measuring or evaluating what was actually accomplished by the activities. In our study,

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* One of these is the publication "Cues to Staffing Tuberculosis Units in Hospitals" prepared by the National League for Nursing, Inc., which points out that a director and assistant director of nursing must be employed by a tuberculosis hospital regardless of the volume of patient-days, while the various classes of nurses assigned to ward service should be assigned in accordance with volume standards (i.e., so many hours of nursing care to a patient-day, classified as to type of patient). It should be noted that, while such publications assist in deciding whether a cost is variable or fixed, the standards published were not those adopted for this study. All of the standards which were developed were based on actual staffing at the Homer Folks Hospital. Hence, all standards are reasonable and realistic in relation to the operation of this specific hospital.

Table 1—Homer Folks Tuberculosis Hospital

Cost Centers or Departments
Outpatient Service
1. O.P.D.
Professional Care of Patients
2. Ward service
3. Ancillary professional service
4. Surgery
5. Laboratory
6. X-ray
Dietary
7. Food service
Household and Property
8. Laundry
9. Housekeeping
10. Maintenance
11. Power plant
Administration
12. Administration

these uses may be illustrated by a brief examination of the various levels of decision-making, from the level of the operating supervisor of one of the cost centers at the hospital to the commissioner of health.

Cost Center Supervision—The program accounting system supplies the person who supervises the cost center with financial and performance data which will enable that person to accept responsibility for cost control as well as activity or program control. Routinely these supervisors can be kept informed of the ways in which the actual costs of their activities compare with budgeted costs. Comparisons of these actual costs with the anticipated standard costs will indicate the areas in which specific investigation of apparent problems should be initiated. Routinely and currently any significant variations should be explained by operating supervisors to their superiors and, when indicated, corrective action undertaken. The types of information which may be provided in the routine reports are shown in Tables 3, 4, and 5.

Table 3 illustrates a report which gives current information to the supervisor and his superiors on the variations between the amount budgeted and actually spent for each account at the ward service center for a specified period. It also includes an explanation of significant variances.

Table 4 presents an example of the workload analysis and performance data which can be routinely supplied by this system. This sample report illustrates the utilization of ward service personnel during a given quarter of a year.

Table 5 gives a somewhat more elaborate type of performance report which can be provided currently to the food service supervisor and her superiors. This table shows also the spending variance as illustrated in Table 3 and, in addition, demonstrates (in column 4) the workload and the value of services actually performed by this supervisor. Thus, it is seen under "Gross Costs" that this supervisor saved $2,968 (column 5), but she should have saved an additional $2,942 (column 7). The explanation of this illustration is simple, while raw food costs declined with the decrease in the number of meals served, the cost of salaries and related expenses remained constant.*

Hospital Director—The data and reports discussed are useful to the director of a hospital, since they provide him with the information he needs to evaluate the performance of his staff. In addition to measuring performance, the program accounting system gives him

* This situation is not due to any failure on this supervisor's part. Only the accounting system is being tested, while all other operations of the hospital are unchanged. Thus, during this experimental period, the various supervisors and administrators are not supposed to take overt action to cause variable costs to decline when workload declines.

Table 2—Homer Folks Tuberculosis Hospital

Defined Units of Measurable Work

Cost Center	Unit
1. Outpatient department	Field clinic sessions
Travel expense	Examinations
All other expenses	
2. Ward service	Special patient-days
	Bed patient-days
	Semiambulant patient-days
	Ambulant patient-days
3. Ancillary professional service	None *
4. Surgery	Major operations performed
5. Laboratory	Laboratory tests performed
6. X-ray	Hospital (inpatient) examinations
	All other examinations
7. Food service	Served meals
8. Laundry	Pounds of laundry processed—staff
	— Special patient
	— Bed patient
	— Semiambulant patient
	— Ambulant patient
9. Housekeeping	None *
10. Maintenance	None *
11. Power plant	None *
12. Administration	None *

* "None" does not imply that no measurable units exist. Rather, it means either: (1) incurred costs are so relatively fixed that no useful planning or control purpose would be served by comparing costs with units of work done; or (2) the identification and recording of measurable units of work would be uneconomical compared with possible benefits to be gained.

a tool for estimating his financial requirements for short- and long-range planning.

Using this technic, budgeting for the following year becomes a simple, rapid, and inexpensive operation. Let us say the standard cost developed for a served meal is 50 cents. On the basis of projected trends in patient population the director can estimate the number of meals to be served. This is only one of several estimates of workload based on hospital census. Then, to determine the amount required for variable food service costs, he simply multiplies the planned number of meals by 50 cents. To this amount are added the fixed costs for the period, and the budget estimate for that activity is completed.

General Director of Tuberculosis Hospitals—This executive serves in the central office of the state department of health, and is charged with the general direction of all tuberculosis hospitals. Using this method of cost accounting, he can measure the performance of each of the hospitals under his supervision, bearing in mind their respective standards, and can compare the cost of accomplishing given objectives with what

was budgeted for those purposes. In addition, this accounting system provides him with an essential tool for planning the best use of physical facilities.

For example, one of the crucial problems facing administrators in a department of health is the proper use of the physical facilities of tuberculosis hospitals during this period of declining patient census. In New York State, the following are among the alternate courses of action to meet this problem: (1) Should wards of state tuberculosis hospitals be closed? (2) Should some of these hospitals be closed and their patients accommodated in the remaining state hospitals? (3) Should small local tuberculosis hospitals be closed and their patients cared for in state tuberculosis hospitals? (4) Should the facilities of state tuberculosis hospitals be used to care for patients with chronic nontuberculous conditions?

Under accounting systems maintained by object of expenditure currently in use throughout the country, the cost data required to make such decisions could only be obtained after a lengthy and expensive special study. Under this program accounting system, such information can be readily and routinely provided to the decision-making authorities. It is understood, of course, that the ultimate decision made in each of these cases is not based upon cost alone. However, cost should play its part in the decision, and it would be unrealistic for any public health administrator to make decisions which were entirely based on factors other than cost.

Commissioner of Health—The chief administrator of a health department can use the financial data in the same manner as has already been discussed for his staff executives. He can appraise the effectiveness of the performance of hospitals, of various case-finding programs and other public health activities. He can plan the best use of facilities and

Table 3—Homer Folks Tuberculosis Hospital Ward Service—Analysis of Spending Variance, July 1–September 30, 1954

Account	Actual Expense	Budget Estimate	Spending Variance
Directly Incurred Costs			
Salaries	$57,062	$60,289	$3,227 *
Workmen's compensation	671	709	38 *
Retirement contribution	5,199	5,497	298 *
Clothing	51	125	74
Medical supplies	2,244	3,194	950
Antibiotics	5,726	6,664	938
Outside hospital services	..	13	13
Repairs to medical equipment	229	108	(121)
Distributions			
Maintenance service received by ward personnel (food, laundry, and rent)	7,059	7,059	
Deduction from salaries for maintenance service	(5,519)	(6,076)	(557) *
Total	$72,722	$77,582	$4,860 †

* Staffing under budget during this period included one senior TB physician vacancy and an average of two staff nursing positions.

† There were 20,249 patient-days of care actually given as compared to 22,813 forecast. (For breakdown of patient-days of type of patient, see Table 4.)

Table 4—Homer Folks Tuberculosis Hospital Ward Service—Analysis of Hours of Nursing Care, July 1–September 30, 1954

Type of Patient	Patient-Days		Standard Nursing Hours per Patient-Day	Standard Hours		Hours Variance
	Forecast	Actual		Forecast Requirements	Actual Requirements	
Special	1,551	1,140	2.5	3,878	2,850	1,028
Bed	5,292	6,213	1.5	7,938	9,320	(1,382)
Semiambulant	9,125	8,337	1.0	9,125	8,337	788
Ambulant	6,845	4,559	0.25	1,711	1,140	571
Total	22,813	20,249	..	22,652	21,647	1,005

Comments:

Budgeted hours of nursing care exceed actual hours required by 1,005 hours.

This variance of 1,005 hours multiplied by the standard variable cost per hour for nursing salaries of $2 = $2,010.

Accordingly, if it were administratively and medically feasible to do so, nursing salaries of approximately $2,000 should have been saved during this period. However, it is recognized, in the case of nurses, that there are other factors in addition to cost control which have a great affect on any decision to leave nursing positions unfilled.

he can estimate their future fiscal requirements.

In addition to these decisions on tuberculosis, the commissioner of health must make decisions on the relative priorities of all health programs. He can be sure that program directors will conceive new programs to contribute to the general welfare of the citizens of the state. Realism compels him to acknowledge that there are equally zealous bureau directors in the departments of education, mental hygiene, commerce and labor whose combined programs could exceed available revenues. Hence, the commissioner must decide which programs should start now and which must wait for future new resources. In making these decisions, costs of program must be considered in addition to

Table 5—Homer Folks Tuberculosis Hospital Food Service Department—Actual, Budgeted, and Standard Costs, July 1–September 30, 1954

	1	2	3	4	5	6	7
	Actual Expenditures	Budget Estimates		Services Rendered at Variable Standard Unit Costs †	Spending Variance Between Budget and Actual, Cols. (2) and (3) Minus (1)	Volume Variance Between Standard and Budget Col. (4) Minus (3)	Net Variance Between Actual (1) and Total of Budgeted Fixed Costs (2) Plus Standard Variable Value of Services (4)
		Fixed	Variable *				
Salaries	$33,930	$ 9,992	$24,071	$21,581	$ 133	$(2,690)	$(2,557)
Workmen's compensation	399	116	283	251	..	(32)	(32)
Retirement contributions	3,092	899	2,197	1,956	4	(241)	(237)
Food	26,418	..	29,237	25,969	2,819	(3,268)	(449)
Linens, tableware, etc.	439	575	..	..	136	..	136
Repairs to equipment	463	250	..	..	(213)	..	(213)
Deduction from salaries for maintenance	(3,611)	(629)	(2,893)	(2,572)	89	321	410
Gross Costs	$61,130	$11,203	$52,895	$46,985	$2,968	$(5,910)	$(2,942)

* 97,455 meals planned for this period

† 86,563 meals actually served during this period

their value to the health needs of the people. Such cost knowledge can contribute to a sound decision only if it represents true costs of programs and only if it is readily available for use in planning and budgeting. Both of these criteria are met by this program accounting system.

Discussion

In developing standard costs for activities and programs, it was shown that, ideally, standard costs should be based on accepted standards of performance. However, standard costs can be developed where generally accepted standards of performance are either nonexistent or extremely crude. Since these standard costs would then become basic data for planning and evaluation, it should create desirable pressures toward the establishment of sound standards of performance in areas of public health. Such an end product of this new system of program accounting and performance budgeting would make a major contribution to the evaluation of public health services.

It has been noted that the system provides those true costs of programs which permit the administrator to choose between alternatives. These costs are also expressed in terms of workload. At the present time, when tax moneys are appropriated in terms of objects of expenditure, the legislature authorizes the hiring of certain numbers of physicians, nurses, engineers, and also expenditures for travel, utilities, supplies, and similar items. In periods of economy or of great competition among programs, the legislature commonly reduces funds by a reduction of positions, miles traveled or supplies to be purchased. This could be done without a keen sense of having curtailed essential services. However, if the budget is expressed in the following terms, the effect of the cuts in funds upon the essential program is immediately apparent:

For care of 1,000 tuberculosis patients	$xxxxx
For research in the early diagnosis of breast cancer	$xxxxx
For the rehabilitation of 2,000 children with paralysis from poliomyelitis	$xxxxx

If costs are based upon standards which reflect the cost for one patient-day of care for a citizen with tuberculosis, and if there are 1,000 such people needing hospital care, the budget needs for the tuberculosis hospitalization become clear-cut. Funds to support such a budget can be denied only when the legislature decides that only a portion—or none—of these individuals should be hospitalized. A legislature, responsive to its constituents would find it very difficult to make this type of adverse decision in the field of public health.

Health administrators may believe that the approach to the problem of standards in public health should first be made on a scientific basis before one becomes concerned about the fiscal aspects of the problem. Since health officers are now dealing routinely with fiscal authorities in order to obtain funds, practical considerations dictate that this problem be approached from the financial side. Much money is now being appropriated and spent for health activities, and one may well begin by noting how much each activity or groups of activities cost. After those standards which mirror our current practice are defined, it will be incumbent upon health administrators to undertake appropriate studies aimed at improving the scientific quality of these standards. Ideally, the final standard will be an expression of public health accomplishment. Such standards will be in terms of patients restored to health, active cases discovered, children immunized, and environmental hazards corrected. In the mean-

time, we may have to accept standards of "work effort," such as patient-days of hospital care, nursing visits, clinic visits, and sanitation inspections.

One of the most important features of the new system is its value to the health officer in the development of his long-range plans. Fiscal planning, as done by government, is usually an annual problem, with the preparation of each year's budget an independent operation. If the health officer knows the cost of each of several alternate plans for the performance of health service, he will be able to adjust his program more readily to the funds made available each year by appropriating bodies. The health officer may, for example, be fortunate enough to secure budget approval to an arrangement whereby any money saved in one specific program might automatically be diverted to another group of activities of public health value. This will place the premium on economy and give a health officer an added incentive to make the most efficient use of all his funds so that he may proceed with some new programs. In our present period of rapid change in program priorities in public health, such an arrangement would assist in persuading health officers to decrease their emphasis on relatively unproductive activities.

When alternate plans are considered by the health officer, budget officer, or the legislature it is important to emphasize that taking "no special action against the problem" is always one of the alternates. It should be possible to gather data on the fiscal implications of this "do nothing" alternate as well as alternates which require special services by health units. Public and fiscal leaders should be presented with data describing the high cost of inactivity as compared with that of productive services, particularly when such services can take advantage of certain fixed costs already committed. This may well lead to greater success in securing funds for necessary health programs in chronic disease.

Summary

The health officer must secure adequate funds to provide high-grade public health services for his community. He must, therefore, have a knowledge of the financial implications of his administrative decisions. Such knowledge will help him secure the funds he requires from appropriating bodies, and to spend them wisely. A study aimed at the development of such a system was established, on a trial basis, at a state tuberculosis hospital under the New York State Department of Health. This program accounting and performance budgeting system has been described, as well as some of the important implications of this system to health administrators. During this era of changing priorities in public health, it is suggested that this method will be of considerable value to public health planning, operations, and evaluation.

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Relation of the New Respiratory Agents to Acute Respiratory Diseases

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Suggested here is the probability that the great grouping of acute respiratory diseases of unknown etiology may be reduced and that there will emerge some clinically recognizable and identifiable infections. Implications of immunologic and epidemiologic data presented are clearly interpreted in the discussion for those readers not closely in touch with these areas of research.

Investigation of acute respiratory infections of probable viral etiology has led to the delineation of several syndromes with distinct clinical and epidemiologic behavior.[1, 2] At one extreme, clinically, is the common cold, an afebrile and mild infection; at the other extreme is primary atypical pneumonia, a febrile and relatively severe illness. Between these are two other acute infections which stand out as diseases of major importance: (1) an influenza-like illness often called febrile catarrah,[3] but during World War II termed "acute respiratory disease," or for convenience, ARD[1, 4]; and (2) nonstreptococcal exudative pharyngitis.[1, 5, 6] The former, ARD, in hospitalized patients is an acute infection characterized by fever, chilliness, headache, generalized aches and pains, hoarseness, and irritated or scratchy throat. The latter, nonstreptococcal exudative pharyngitis, is typified by constitutional symptoms, pain on swallowing, and enlarged and tender cervical lymph nodes. Each of these syndromes occurs sporadically and epidemically and is of importance to military and civilian populations. The final identification of these infections and proof of the concepts[1, 3-8] derived from clinical, epidemiologic, and human transmission studies was dependent upon recognition of the etiologic agent of each.

Isolation in tissue cultures of the adenoid degeneration, or AD, agents[9] and of the RI-67 agent[10] suggested that means of identifying certain of the acute respiratory infections might be at hand. Investigations were therefore carried out to determine the relationship of these new respiratory agents, presumably viruses, to the acute infections discussed above, as well as to attempt to isolate new viruses which might have an etiologic relationship to one or more of these syndromes. The infections investigated were ARD, primary atypical pneumonia, and nonbacterial pharyngitis.

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Materials and Methods

All serologic determinations and primary isolations were carried out in tissue culture with a single line, strain HeLa, of epidermoid carcinoma cells.[11] The methods employed are described in detail elsewhere.[12] Sera were available from human transmission experiments carried out by the Commission on Acute Respiratory Diseases in 1944 and 1945[7, 8] and from cases of ARD[3, 4] and nonstreptococcal exudative pharyngitis[5, 6] that occurred in army personnel,* as well as cases which were observed in Cleveland, Ohio, in hospitalized patients and in individuals of a family population group.[13] The sera from volunteers in the human transmission experiments and from patients with acute respiratory infections at Fort Bragg, N. C., were lyophilized; all other sera were stored at —20° C.

Relationship of RI-67 and AD Agents to ARD

Human Transmission Experiments—The Commission on Acute Respiratory Diseases inoculated volunteers with filtered respiratory secretions from typical cases of ARD, common cold, and primary atypical pneumonia characterized by cold hemagglutinins.[7, 8] These studies indicated that the infections were transmissible to man by bacteria-free filtrates, that each was a distinct entity, and that ARD infection conferred homologous but not heterologous immunity.[7, 8] Acute and convalescent phase sera from each donor and pre- and postinoculation sera from each recipient were available for neutralization titrations with the RI-67 agent. The results of experiments summarized in this paper are presented in preliminary form[14] and described in detail[12] elsewhere.

Titrations in which sera from donors of infected secretions and the RI-67 agent were employed indicated that the donor ill with ARD developed antibodies against this virus during convalescence, but that donors ill with primary atypical pneumonia or the common cold had no increase in their specific neutralizing antibodies. The results of titrations carried out with sera from recipients of infected filtrates are summarized in Table 1. A significant increase in antibodies against the RI-67 agent occurred in 20 of 24, or 83 per cent, of volunteers inoculated with the ARD filtrate; but none given primary atypical pneumonia or common cold secretions had a rise in antibody titer even though clinical illness occurred.

From these data it was possible to relate the susceptibility to clinical infection following inoculation of ARD filtrate with the presence or absence of circulating RI-67 antibodies at the time of inoculation. This correlation is sum-

Table 1—Neutralization Titrations with RI-67 Agent and Sera from Recipients of Infected Filtrates

Inoculum	Neutralization Titer Rise *
ARD	20/24
PAP	0/15
Common cold	0/35

* Numerator = number antibody rise
Denominator = number tested

Table 2—Correlation of RI-67 Antibodies in Preinoculation Sera with Occurrence of ARD

Antibody Preinoculation Sera	Results of Inoculation with ARD Filtrate	
	Number Ill	Number Not Ill
Absent	15	1
Present	3	5

* Sera were made available through the generosity of Dr. Charles H. Rammelkamp (Fort Warren Air Force Base) and Dr. Stanley Bernstein (Sampson Air Force Base).

marized in Table 2. Of 18 recipients who became ill, 15, or 83 per cent, had no antibodies in their sera at the time of inoculation. In contrast, there were six recipients who showed no evidence of clinical infection; five of these individuals, or 83 per cent, had specific neutralizing antibodies in their blood when inoculated with the ARD filtrate. Or, summarized in another manner, of 16 who did not have antibody in their preinoculation sera, 15, or 94 per cent, showed clinical evidence of infection; of eight who had circulating antibodies when inoculated, only three, or 38 per cent, became ill.

One may deduce from these data that (1) the agent which produced ARD in these human transmission experiments was identical with, or immunologically closely related to, the RI-67 virus isolated by Hilleman and Werner [10]; (2) susceptibility to infection with this agent was correlated directly with the absence of specific neutralizing antibodies; and (3) conversely, some resistance to infection was manifest in volunteers whose blood contained specific neutralizing antibodies at the time of artificial infection. The results of these studies also indicate that the RI-67 or related agent did not induce primary atypical pneumonia of cold hemagglutinin type or the common cold in volunteers.

Cases of ARD in Military Personnel —To determine whether or not the RI-67 agent was responsible for naturally occurring ARD, sera from cases which occurred both epidemically and sporadically were titrated. These data (Table 3) indicate that certain epidemics, such as that at Fort Bragg in 1942, and at Sampson Air Force Base in 1953, were in large part related to the RI-67 agent. At other times relatively few sporadic or epidemic cases developed antibodies against this virus. Indeed, even in those epidemics in which the majority of cases were probably caused by the RI-67 virus, an appreciable number of illnesses, clinically not distinguishable, failed to show an antibody rise. Some of them at least were presumably induced by an agent, or agents, immunologically distinct from the RI-67 virus.

Table 3—Neutralization Titrations with the RI-67 Agent and Sera from ARD Patients at Military Installations

Camp	Year	Antibody Rise
Fort Bragg	1942	10/12 *
	1944	8/35
	1945	1/12
Warren AFB	1949	1/3
	1951	0/4
Sampson AFB	1953	13/21

* Numerator = number antibody rise
Denominator = number tested

It was of interest to determine if complement-fixation titrations would be of appreciable assistance in determining the specific etiologic agent involved in epidemics of ARD. As a preliminary to these studies it was essential to determine the specificity of the complement-fixation titration as compared with neutralization titration. Sera from the 1953 Sampson Air Force Base ARD epidemic were employed. These were titrated by complement-fixation and neutralization with the RI-67 and AD agents. The results of these titrations, summarized in Table 4, indicate that little difference could be demonstrated between the RI-67 and AD Type II agent when complement-fixation titrations were done. Those sera in which a rise in RI-67 neutralizing antibody was demonstrable likewise had an increase in complement-fixing antibody as determined with either the RI-67 or AD Type II antigens. Conversely, in those paired sera in which there was no rise in RI-67 neutralizing antibody there was no increase in complement-fixing antibody to the AD Type II virus and in only one instance with the RI-67 agent. With one pair of sera duplicate neutralization

Table 4—Comparison of Neutralization and Complement-Fixation Titrations with RI-67 and AD Agents

Virus	Complement-Fixation Titer Rise *	Neutralization Titer Rise *
RI-67	15/22	13/21
AD Type II	13/22	0/5
AD Type III	..	0/5

* Numerator = number antibody rise
Denominator = number tested

and complement-fixation titrations could not be carried out with the RI-67 virus. The five sera which had the greatest rise in titer of complement-fixing antibodies against the AD Type II agent were selected for neutralization titrations with AD agents Types II and III. No rise in antibody titer could be detected with either virus. These and other data indicate that the RI-67 and AD agents contain a common antigen which is detectable by complement-fixation but not by neutralization titrations. One may conclude from the evidence presented that those cases of ARD which did not develop RI-67 neutralizing antibodies were not caused by agents that have the antigen common to the RI-67 or AD viruses. From these data it is clear that complement-fixation titrations cannot be employed to relate the specific etiology of an acute respiratory disease to the RI-67 or AD agents. Complement-fixation titrations, however, may be of value as a screening method to determine whether any agent of this group was implicated in sporadic or epidemic respiratory disease.

Relationship of RI-67 Agent to Primary Atypical Pneumonia

During an epidemic of ARD, Hilleman and Werner isolated the RI-67 agent from a patient having pneumonic infiltration diagnosed as primary atypical pneumonia.[10] Sera from other patients with primary atypical pneumonia in whom cold hemagglutinins and streptococcus MG agglutinins developed did not show rises in RI-67 neutralizing antibodies. To obtain additional data relative to the relationship of the RI-67 agent and primary atypical pneumonia, neutralization titrations were carried out with this agent and sera from patients in whom cold hemagglutinins and streptococcus MG agglutinins developed, as well as from cases in which a rise in titer of these antibodies did not occur. From the results of these titrations, presented in Table 5, it is seen that antibodies for the RI-67 agent did not develop in patients admitted to the hospital with the diagnosis of primary atypical pneumonia at Fort Bragg or Cleveland; whether or not cold hemagglutinins appeared during convalescence did not influence the results. During the epidemic of ARD at Sampson Air Force Base in 1953, however, four patients considered to have ARD had pulmonary infiltrations; no increase in cold hemagglutinins was detectable in these patients. Three of these had a rise in titer of RI-67 neutralizing and complement-fixing antibodies.

These data do not permit one to consider the RI-67 agent as the sole cause of the syndrome classically described as primary atypical pneumonia with or

Table 5—Neutralization Titrations with RI-67 Agent and Sera from Cases of Primary Atypical Pneumonia

Origin of Cases	Increase in Cold Hemagglutinin Titer	Neutralization Titer Rise *
Fort Bragg } Cleveland }	+	0/18
Cleveland	0	0/8
Sampson AFB	0	3/4

* Numerator = number antibody rise
Denominator = number tested

without cold hemagglutinins. Rather the results of this study suggest that in some cases of ARD pulmonary infiltration may develop. Without knowledge of etiology, these cases by definition would be classed as atypical pneumonia. An analogy exists in another acute upper respiratory disease of viral etiology, i.e., influenza, in which pulmonary infiltration due to the virus may be observed.[15, 16] Thus, with the recognition of an important etiologic agent of acute respiratory disease, one can separate from the large group of nonbacterial pneumonias of unknown etiology another group of specific infections in which pulmonary infiltration may occasionally occur.

Nonbacterial Pharyngitis

It has long been recognized that pharyngitis may occur in infections initiated by many agents in addition to the streptococcus. Indeed, it has been considered that certain forms of pharyngitis, with or without exudate, may be of viral etiology, and epidemics of nonbacterial exudative pharyngitis and tonsillitis have been described.[4-6] An epidemic of this syndrome occurred in a family study population in Cleveland [13] during July and August, 1954. This event offered an excellent opportunity to determine whether the etiology of nonbacterial pharyngitis could be determined by tissue culture technics.

The clinically recognized infections occurred mainly in children and only rarely in their parents. The illness was characterized by pain on swallowing, fever, headache, and constitutional symptoms. Often fever and headache were the initial symptoms and persisted for several days before the onset of sore throat. Physical examination revealed red, edematous pharynges and, when present, large and swollen tonsils. Most frequently patches of thick yellow exudate were observed in the pharynx and enlarged nontender or slightly tender cervical lymph nodes were palpable. Conjunctivitis was not a prominent feature of these infections. Streptococci could not be cultured from the pharynx. Symptoms varied in duration from two to seven days, and antibiotics did not appear to alter the course of the disease.

In addition to members of the family population, a few cases were observed at University Hospitals and in staff personnel. Preliminary results of the investigation of the etiologic agents implicated in this epidemic are presented. For isolation of agents, the posterior pharynges of sick as well as healthy persons were swabbed and the cotton covered end of the wooden applicator immediately immersed in Hank's balanced salt solution. This material was inoculated into HeLa cell cultures. From 30 cases, 13 agents, presumably viruses, were isolated (Table 6). Of these, nine, or 69 per cent, corresponded to the Type III AD agent originally isolated by Rowe, Huebner, and co-workers.[9] Two of the viruses obtained during this epidemic were related to, but not immunologically identical with the Type II AD agent. These two agents were isolated from siblings. In addition to the two persons from whom these viruses were obtained, other ill members of the family had a rise in neutralizing antibodies to this Type "II-like" agent. None of the other pairs of sera from persons sick during the epidemic had a rise in antibodies to this virus. In addition, two strains of herpes simplex virus were isolated. One was obtained from a patient

Table 6—Agents Isolated from 30 Cases with Nonbacterial Pharyngitis

Agents Isolated:	
AD Type "II-like"	2
AD Type III	9
Herpes simplex	2
Total	13

Table 7—Neutralization Titrations with Agents Isolated During Pharyngitis Epidemic

Persons	Number Tested	Results of Neutralization Titrations: Antibody Rise					No Antibody Rise *	
		AD III	AD "II"	Unknown	Total Number	Total Per cent	Total Number	Total Per cent
Ill	31	17	3	2	22	71	9	29
Well	61	1	1	0	2	3	59	97

* Tested with AD Types "II-like" and III

without clinical evidence of herpes simplex and with no history of stomatitis or fever blisters during the past five years or longer.

The relationship of these respiratory agents to pharyngitis in the epidemic under discussion, as demonstrated by neutralization titrations, is summarized in Table 7. Paired sera from 31 illnesses were tested by neutralization titrations with one or more of the viruses isolated. Of the 31 cases, 22, or 71 per cent, showed a rise in antibody titer to one of the two types of AD viruses isolated. The majority of these, 19 individuals, developed immune bodies to AD Type III. Three persons, all in the same family, had an increase in antibody titer to the Type "II-like" agent. In not a single instance in which an antibody rise occurred was there antibody present in the acute serum. It is of considerable interest that 29 per cent of the individuals who were ill showed no increase in antibody titer to either the Type "II-like" or Type III virus.

A total of 61 persons who had no clinical symptoms of pharyngitis during the epidemic were also tested to determine the number of inapparent infections which occurred. Only two individuals had a rise in neutralization titer; one to Type III and the other to the Type "II-like" agent. Each of these individuals was a member of a family in which infection occurred in at least two other persons. The fact that 97 per cent of the well individuals tested had no rise in antibody titer indicates that the occurrence of inapparent infections was indeed small. These data support the conclusion that the viruses isolated were etiologically related to the cases of pharyngitis observed. It is clear, however, that whereas the predominant virus was AD Type III, other agents appear to be related to approximately one-quarter of the cases studied.

Within the family study population [13] of 61 families present in Cleveland during the epidemic, 12 families in which two or more cases occurred have been investigated thus far. Attempts were made to isolate viruses from one or more members of 10 of these families. Agents were isolated from six of the families studied (Table 8). Neutralization titrations were done on paired sera from members of all 12 families. Of 10 families in whom serologic evidence of infection was obtained, the AD Type III agent was implicated in nine and the Type "II-like" agent in one (Table 8).

As summarized in Table 9, these data may be expressed in terms of the individual members of those families tested. There were 25 individuals with pharyngitis, in 19 of whom an increase in neutralization titer was demonstrated. In six, or 24 per cent, of the 25 ill per-

Table 8—Neutralization Titrations and Virus Isolations from Family Episodes of Pharyngitis

Determination	Number Tested	Results	
		Positive	Negative
Virus Isolations	10	6	4
Neutralization Titrations	12	10	2

sons tested, no rise in antibody to either Type III or "II-like" agents could be demonstrated. These six persons were all members of two families in which no evidence of infection with the agents isolated could be obtained by neutralization titrations. In the 12 families, eight individuals who remained well were tested. Only two of the eight had a rise in antibody during the same period in which the ill members of the family developed immune bodies. In the persons who remained well the apparent resistance to infection with either of the AD viruses did not appear to be related to the presence of antibody in the blood during the epidemic period.

Discussion

The isolation in tissue culture of new upper respiratory tract viruses has resulted in a series of investigations which relate these agents to infections in man. The results of studies by Hilleman and co-workers,[10] as well as investigations summarized in this paper, indicate that the RI-67 virus agent is related to, and probably etiologically responsible for, a grippe-like infection termed ARD. It is suggested, therefore, that this agent be designated the ARD virus. This does not imply that the RI-67 agent is the only virus that may cause ARD. Indeed, the data clearly indicate that more than one agent is responsible for this clinical syndrome. These, when identified, would be referred to as immunologic types of the ARD virus.

Although serologic titrations and virus isolations have indicated that instances of pneumonic infiltration presumably due to the RI-67 virus have occurred during an ARD epidemic, the evidence available indicates that this agent does not cause characteristic cases of primary atypical pneumonia associated with cold hemagglutinins. Rather, it is suggested that with ARD infection, as with influenza virus infection, pulmonary infiltration may ensue as an extension of the disease from the upper respiratory tract into the pulmonary parenchyma.

The adenoid degeneration or AD agents isolated by Rowe, Huebner, and co-workers[9] do not appear to be implicated etiologically with the classical forms of ARD or primary atypical pneumonia. The evidence presented, however, does indicate that the Type III AD agent is related to nonbacterial pharyngitis. Furthermore, the data imply that other agents, one of which is a Type "II-like" virus, may initiate this clinical disease. It is of considerable interest that in a single, relatively sharp epidemic more than one agent may be active. The results of serologic studies carried out with sera obtained from additional civilian and military cases of

Table 9—Neutralization Titrations of Sera from Individuals in Families with Two or More Cases of Pharyngitis

Persons	Number Tested	Results of Neutralization Titrations			
		Antibody Rise		No Antibody Rise	
		Number	Per cent	Number	Per cent
Ill	25	19	76	6	24
Well	8	2	25	6	75

nonbacterial pharyngitis indicate that still other viruses may be involved.

The isolation of specific viruses from cases of acute respiratory diseases makes possible accurate delineation of certain clinical syndromes. It now appears probable that the large group of acute respiratory diseases of unknown etiology will be reduced, perhaps only slightly, but significantly, to a smaller size, and that there will emerge acute respiratory infections that can be recognized clinically, identified etiologically, and understood epidemiologically.

Summary

The RI-67 agent isolated by Hilleman and Werner has been clearly related to the acute respiratory disease ARD. Evidence indicates, however, that other agents which are immunologically distinct also are responsible for cases of this syndrome. The data obtained imply that occasional cases of ARD have pulmonary infiltration. From cases of nonbacterial pharyngitis which occurred in Cleveland in a family-study population during July and August, 1954, adenoid degeneration, AD, agents were isolated. The Type III agent was the predominant virus implicated, although at least one other immunologic type has been shown to be associated with clinical cases. The data obtained clearly imply that the viruses isolated were the causal agents of the cases of nonbacterial pharyngitis.

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Anticipated Progress of Yellow Fever in Guatemala and Mexico, 1955–1959

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The ominous northward march of sylvan yellow fever serves as a disquieting reminder that nature has a way of deflating man's boastfulness.

The wave of yellow fever that has been moving westward and northward through Central America since its origin in eastern Panama in 1948 is at present (March, 1955) dormant in northwestern Honduras.

Since the clinical recognition of two recovery cases in human patients whose infection was acquired in the vicinity of La Ceiba, Honduras, in August, 1954, and a somewhat anomalous human fatality in the city of San Pedro Sula near La Lima, Honduras, late in September, the wave has been in a "silent" phase. This quiescence during the dry season, or winter months, has been a fairly constant characteristic of the epidemiologic pattern during involvement of the Atlantic watershed of the countries successively involved.

It is anticipated that the next epidemic outbreak will occur in the vicinity of Los Amates, Department of Izabal, in the Motagua Valley of northern Guatemala in July, 1955. This prediction is based upon the epidemiologic pattern of the wave as exhibited since 1948.

Epidemiologic Pattern

Over-all velocity between epidemic centers: 13 miles per month, or approximately 160 miles per year. This timetable cannot be determined accurately on the basis of epizootic episodes.

Epidemic outbreaks tend to occur in the vicinity of the 1,000-foot contour. All human cases in Costa Rica acquired the infection at elevations not over 500 meters (1,640 feet) above sea level.[9] Infections may be acquired at elevations near sea level where mountains are close to the shore line.

Epizootic activity, involving especially the arboreal primates, has been observed only below the 2,000-foot contour. This observation is based on the acquisition of livers of dead, dying, or sick monkeys showing the typical pathologic lesion of yellow fever.[12] At times monkeys have been found migrating out of areas of epizootic activity, fleeing to higher elevations, but no positive livers have yet been acquired to indicate that they may transport the virus over the natural barrier afforded by the 2,000-foot contour.

Epizootic activity may precede epidemic outbreaks, or at times these two phases may occur simultaneously. While epidemic centers are still active, the epizootic phase may run ahead as a precursor wave.

Epidemic outbreaks have been self-limited, subsiding spontaneously after about two months, as the main axis of the wave moves on. This characteristic has made it possible to terminate quarantines after the wave has cleared regions successively involved and to enforce quarantines only in "risk areas" or "zones of activity," as suggested by Calderwood.[1]

Although sporadic human cases may

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occur at any time of year, epidemics have usually developed during the summer months (July–October), as shown in Table 1,[9] in which the cases occurring in 1951 were predominantly on the Atlantic side of Costa Rica, and those of 1952 were entirely on the Pacific side.

Natural barriers may be crossed by human carriers. This feature indicates the need for surveillance of migratory farmers traveling over mountain trails from valley to valley, and of the crews of coastal shipping vessels that may contact the mainland during periods of epizootic and epidemic activity.

Definite evidence of urbanization of the virus in the cities of Central America so far has been lacking, the human fatality at San Pedro Sula, Honduras, in September, 1954, constituting the only possible exception. Circumstances involving this patient do not support the likelihood of an urban infection.

Table 1—Monthly Admissions, Classical Yellow Fever, San Juan de Dios Hospital, San José, Costa Rica, 1951–1952

	1951		1952 *	
	Admissions	Deaths	Admissions	Deaths
January	..	..	3	1
February	..	..	..	..
March	..	..	1	1
April	..	..	..	..
May	..	..	..	..
June	..	..	13	1
July	2	2	3	2
August	76	21	8	1
September	59	11	11	6
October	15 †	6	3	..
November	2	1	1	..
December	3	2	3	1
Total	157	43	46	13

* All on Pacific side.
† End of outbreak on Atlantic side and beginning of outbreak on Pacific side.

Historical Evidence of Jungle Yellow Fever in Guatemala and Mexico

Interpretation of the historical source material on yellow fever in Guatemala and Mexico is very difficult because of confusion arising from the intermingling of urban and sylvan forms of the disease, and a general ignorance of the existence of the jungle epidemiologic pattern prevailing among historians until this form was discovered in the Valle do Chanaan, Espirito Santo, Brazil, in 1932 [11] and recognized as prevalent in the Amazon Basin by 1935. The confusion was widespread because of the introduction into, and establishment in, the Western Hemisphere of the urban vector, Aëdes aegypti, from the Old World by the ships of the early explorers and settlers, making possible urban-sylvan and sylvan-urban transference of the virus. Port and urban settlements where this vector thrived could become infected from sylvan outbreaks, and conversely sylvan outbreaks could be caused to occur from virus transmission by human carriers from endemic localities. Such local sylvan outbreaks would have acted as backfires against major wave movements or, until the reproduction of sufficient susceptible arboreal mammals, would have acted as natural barrier zones. There is no acceptable evidence that such barrier zones exist at the present time.

Not only was the Mayan Empire swept by sylvan yellow fever in 1484, as indicated by the epidemic of "xekik" (bloody vomiting) to which reference is made in the Books of Chilam Balam of Chumayel and Chilam Balam of Tizimin,[8] but this form of the disease has also been noted in northern Guatemala early in the 20th century. Sanchez [10] reports credible accounts of the ominous silence in the forests of the Verapaces due to the annihilation of the howler monkeys by yellow fever in 1901, followed by a great epidemic in that same region in 1902. Gaitan [7] records an out-

break of the sylvan form close to the Honduran frontier in the Motagua Valley of the Department of Izabal, in the vicinity of Los Amates, in 1920.

One of the best accounts of the antiquity of yellow fever in Mexico is given by Connor [4] who recognized areas of endemicity, such as Campeche, Tabasco, Vera Cruz, the Valley of the Papaloapan, Ticul, and the vicinity of Mérida. He noted the frequency of the disease among the population of the upland regions, such as the Oaxacan hills, only after migration to the lowland river fronts. These people, as related in the chronicles, were free from the disease until they visited the coastal areas to make war or engage in the harvest. Carter,[2] rather skeptical because he did not believe yellow fever could exist in the absence of Aëdes aegypti, nevertheless comments on the periodic repopulation of the coastal areas by order of the Montezumas because of epidemics which at times wiped out the population of the lowlands. This was primarily the "matlazahuatl," characterized by the vomiting of blood and other manifestations of a hemorrhagic diathesis which was carried back even into the highlands.

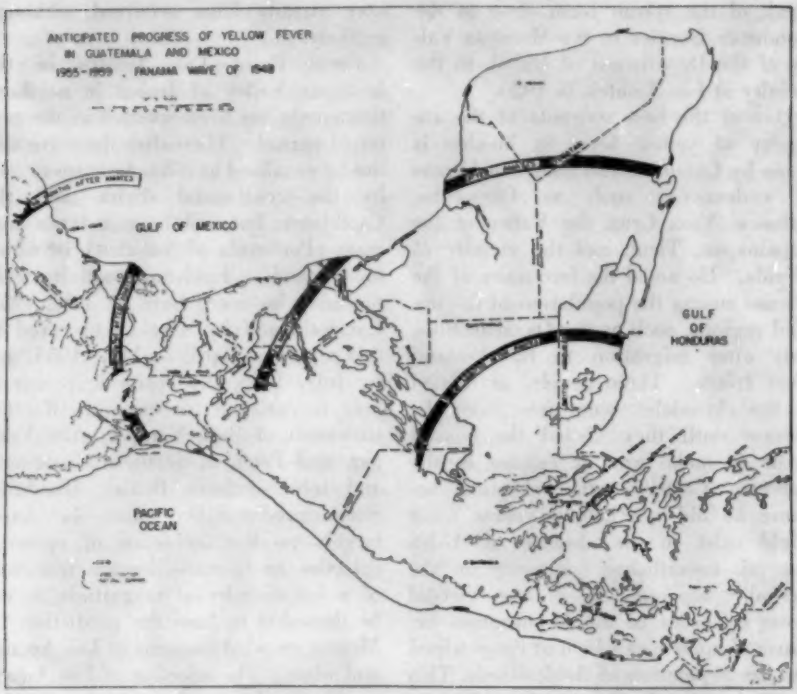
Forecast for Northern Guatemala and Mexico

Three fairly long-range forecasts of the anticipated progress of the yellow fever wave into Costa Rica,[5] Nicaragua,[5] and Honduras [6] have already proved accurate. Predictability of the future progress of the wave into northern Guatemala and Mexico involves a calculated risk, but an attempt seems warranted as a working hypothesis in order to plan for future eventualities. The pattern of the wave may change, compelling modifications in the forecast from time to time, and it is even possible that the natural death of the wave may already have occurred, although unlikely.

Focal Point—Los Amates in the Motagua Valley of Izabal in northern Guatemala has been selected as the center of spread. Thereafter the wave will not be canalized as it has been up to now by the continental divide and the Caribbean, but will have a large land mass (Peninsula of Yucatan) in which to expand. Epidemic activity will probably be noted here by July, 1955. Epizootic activity may be observed in this region in April or May, 1955, and by July, 1955, the epizootic precursor may be well on its way into the Departments of Baja Verapaz, Alta Verapaz, and Peten in northern Guatemala, and into southern British Honduras. Since predictability must be based largely on the incidence of epidemic episodes or sporadic human infections of a lethal order of magnitude, it will be desirable to base the prediction for Mexico on what happens at Los Amates, and when. The selection of Los Amates as this focal point is somewhat empiric and events may show that it is not the proper focal point. If not, then a reevaluation will be necessary.

The "12 Months After Amates" Band—Although the main axis of the wave will probably follow the general direction of the Usumacinta Valley to the northwest, a balloon-like spread over the lowlands to the north should also be anticipated. Just how far this spread will travel remains to be seen. The mountain mass in British Honduras will probably serve as another focal zone for the surrounding terrain, with involvement of the region around Belice by July, 1956.

The "24 Months After Amates" Band—Early in 1957 the Gulf Coast of Campeche and Tabasco will probably be involved, primarily in the vicinity of the Laguna de Terminos, where the band is interrupted. The main axis



should then be approaching the headlands of the Grijalva and Zocatalpa Valleys in the State of Tabasco to the west. At this time careful surveillance of coastal shipping and other appropriate measures will be necessary to prevent urbanization of the virus to the Gulf Settlements of Mexico and the United States.

The "36 Months After Amates" Band—This is a difficult projection. The break in the continental divide in the Isthmus of Tehuantepec may momentarily slow the wave, but may also permit involvement of the Pacific watershed. The main axis will then be approaching the valley of the Papaloapan late in 1958. A daughter wave may move into southeastern Oaxaca.

The "48 Months After Amates" Band—This is the arbitrary limit of the projection, since there is a region here where the mountain mass approaches close to the shore line of the Gulf of Mexico, and another opportunity for the creation of a man-made barrier zone exists similar to, but not so promising as the situation that obtained in the vicinity of La Ceiba in northern Honduras where no such effort was made.[6] Any attempt at establishing a barrier zone here should be in readiness before January, 1959. Otherwise the main axis will probably continue on through the State of Vera Cruz to Tampico, involving the Panuco Valley. The mountainous regions of the State of Tamaulipas to the north will probably contain the wave and provide the site of its death.

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Trading Public Health Experience

Taking advantage of the fact that numerous public health workers from all parts of the world were in the Western hemisphere for the Eighth World Health Assembly in Mexico City, the National Citizens Committee for WHO arranged a series of conferences for the exchange of information and experience among public health scientists of the United States and other countries. The group included about 100 scientists from 40 foreign countries and perhaps double that number from the United States.

The Washington technical session was held on May 30 and 31 at the Pan American Sanitary Bureau, the Clinical Center for Research and the National Institutes of Health of the Public Health Service. Here, there was discussion of newer knowledge of virus and parasitic diseases, new developments in insecticides, and the technics for reliable health and population statistics and statistical controls in research work.

The Baltimore session, late afternoon and evening of May 31, was held at the Johns Hopkins School of Hygiene and Public Health. Graduate public health training, administration, and housing in relation to health were the subjects of round-table discussion. A tour of the school and the Johns Hopkins Hospital was included.

The New York sessions of two and a half days were held variously at the City Department of Health, the Chas. A. Pfizer offices, New York Hospital, Kips-Bay Yorkville Health Center, Rockefeller Institute for Medical Research, Memorial Center for Cancer and Allied Diseases, and the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center. Poliomyelitis, antibiotics, public health teaching, blood banks, were among the subjects discussed.

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Wanted—An Editorial Moses

The issuance in January, 1955, of President Eisenhower's message to Congress on a national health program and in February of the Report of the Medical Task Force of the Hoover Commission adds to the plethora of official documents released in successive floods from Washington during the last 10 years. The medical and public health needs of the country, as set forth by commission after commission report, will now fill more than the proverbial five-foot shelf.

In each instance, the documentation has been so elaborate, so painstakingly detailed, and so comprehensive in scope that the summaries, obviously considered essential, have in themselves added to the tonnage of printed matter. The Editor has often been led to wonder how the intelligent and interested layman manages to wander through this forest—and more important how he determines what the professional wants and proposes to attain it. This sympathy for the bewildered layman stems from the uncomfortable feeling that the Editor himself is lost in the morass of official diagnoses, therapies, and proposed governmental solutions.

Each report plays upon the fact that our governmental structure and functions in this area of responsibility are a patchwork quilt. It should be recalled that virtually all governmental activities, viewed retrospectively, represent ad hoc improvisations and even concessions to the climate and the necessities of the times. The design, the features of which become most clearly delineated only after the trial and error processes of history, is frequently difficult to detect. The omniscience which some believe we have and an electorate which prevents its fulfillment promptly are the contrasting forces which protect a democratic state.

The defects of a patchwork system obviously should be sought out and corrected as promptly as possible. To accomplish this purpose, somewhere a succinct summary (even five pages) of where we should go should be distilled out of the thousands of pages of thoughtful exploration.

That eminent American philosopher, Will Rogers, lost in an earlier flood of commission reports, once wisely remarked: "Collecting statistics is like collecting garbage; after you have it, you have to do something with it!"

The man on the street may well be heartened by the recognition of the expanding horizon of public health activity if he can learn about it reasonably promptly. Then and only then can he help do something about it.

Yellow Fever Again!

Many years ago we pointed out that "the ghosts of environmental disease have been laid in the literature, but not in the fact." In 1955, Dr. Fred L. Soper, director of the Regional Office of the World Health Organization, warns that "yellow fever has not been eliminated as a permanent threat to the United States."

Rip Van Winkle might well rub his eyes on reading this pronouncement more than three quarters of a century after yellow fever was the scourge of many American cities. Why bring up such disagreeable ancient public health history? Last summer the disease suddenly appeared in Port-of-Spain, Trinidad, with its accompanying fears, excitement, and hasty unreasonable measures for control.

The Aedes aegypti mosquito, the only urban vector of yellow fever, has been diligently pursued for eradication since the Rio de Janeiro epidemic in 1928 and 1929. Today all of Brazil, Paraguay, Bolivia, Chile, Ecuador, and Peru have been declared free of this mosquito. An eradication campaign has been started in Mexico, Cuba, Haiti, the Dominican Republic, and in many Carribbean areas.

In Central America, Panama, Costa Rica, and Nicaragua have likewise been declared free of the dangerous mosquito. But north of Nicaragua this optimistic picture disappears. From there on to the north, including both the Pacific and Atlantic Coasts, the aegypti infested area is dominant.

In the United States, the only country not yet a party to the eradication program, the whole southern third of the country has been declared by the Public Health Service as a "receptive area," open to the introduction and transmission of yellow fever.

Jungle yellow fever has been slowly moving northward through Panama and Central America since 1948. Shades of Gorgas in the building of the Panama Canal! In September, 1954, the wave reached the northwest corner of Honduras, even though for a quarter of a century no human case had been reported in Central America. When the small gap in Guatemala has been bridged, the epidemic threat in cities and towns to the northward becomes immediate.

No one country is safe as long as its neighbor is careless. As long as jungle yellow fever supplies the reservoir, an infected person may cause havoc when he moves into the urban area, unhappily well supplied with the appropriate mosquito. Can the North American health officer shift his sights long enough away from medical care to recapture the environmental perspective of the late nineteenth century—in the United States, not in Pakistan! Upon his flexibility rests our yellow fever prospect. (We borrow heavily from the excellent summary: "Yellow Fever on the Move," Medical News Letter, U. S. Navy, Vol. 25, No. 6, March 18, 1955, p. 32. See also "Anticipated Progress of Yellow Fever in Guatemala and Mexico, 1955–1959" by Colonel Norman Elton in this issue.)

The Federal Food and Drug Administration and the Public Health

Protection of the public from foods dosed with chemical preservatives, candy colored with poisonous dye, narcotic soothing syrups for babies, and the tragic consequences which followed when people believed in the cure-all promises of the patent medicines led Congress to pass the original "Pure Food and Drug Law" of

1906. Enforcement was vested in the Bureau of Chemistry of the U. S. Department of Agriculture under the leadership of Dr. Harvey W. Wiley.

In 1927 the Bureau of Chemistry was reorganized and the Food and Drug Administration was established as a separate unit of the Department of Agriculture. In 1938 the original "Pure Food and Drug" law was completely rewritten and provided additional public protection through federal supervision of new drugs, medical devices, and cosmetics. In 1940 the administration was transferred from the Department of Agriculture to the Federal Security Agency, which became the Department of Health, Education, and Welfare, April 11, 1953.

The function of the Food and Drug Administration is to enforce the laws which Congress has enacted to protect the public against adulterated or misbranded commodities in interstate commerce and insure that they are pure and wholesome, safe to use, made under sanitary conditions, and truthfully labeled.

Modern scientific methods are required to enforce the Federal Food, Drug, and Cosmetic Act. (The FDA was one of the first of the scientific crime detection agencies.) Without methods of scientific analysis to determine the purity of foods or the potency of drugs, laws to insure their identity, strength, and quality would be unenforceable and impractical.

The Food and Drug Administration has 207 inspectors, including 15 import food and drug examiners, currently working throughout the country out of 16 district offices. They inspect factories, warehouses, and processing plants and collect samples of pertinent products, including imports, in normal channels of commerce to check on compliance with the law. Chemists at the district laboratories analyze the collected samples. Together, the inspectors, chemists, physicians, and other professional specialists obtain the factual evidence which is required for presentation to the federal courts in the 1,400 or so legal actions initiated annually by FDA. Preparation of the cases for the United States district attorneys is handled by a small legal staff in the general counsel's office of the department.

All together the FDA now employs about 938 persons, only a few more than in 1940 when the new law became fully effective. That law greatly expanded FDA's responsibilities. Since that time the population of the country and the volume of regulated products have grown tremendously. A vast number of new products have come on the market and methods of processing and packaging have become increasingly complex. Science has created new industries. Such products as antibiotics, frozen foods, ready-to-serve foods, new veterinary drugs, and medicated animal feeds to promote fattening, increase milk or egg production, or effect other physiological changes in farm animals, have multiplied the FDA's responsibilities. During December, 1954, 133 new drug applications and 553 supplements to previously processed new drugs were submitted for review of the manufacturer's evidence of safety. The law requires that this review be completed within a fixed statutory time limit.

Among other major and significant functions of the administration are pretesting of all batches of six of the most important antibiotic drugs and batches of insulin for purity and potency, as well as certifying the safety of coal tar dyes for use in foods, drugs, or cosmetics; regulation of the notice of serving of oleomargarine in public eating places; seafood inspection service; and the regulation of the retail sale of dangerous prescription drugs.

Congress has quite consistently adjusted the law to keep it up to date, particularly taking into account scientific and technological developments and changes as they have come along. Recently, Congress passed the pesticide amendment to

safeguard public health by establishing safe tolerances for residues of pesticide chemicals used on food crops. The handling of this new amendment gives FDA another important item of new business, the eventual scope of which is not foreseeable at this time.

To carry out its multiple enforcement programs, the 1955 appropriation was $5,100,000, as compared to $5,600,000 in 1953. FDA efforts to afford a high level of protection of the nation's health are inevitably related to available appropriations. Most planned programs to seek out violations which cheat the consumer have necessarily been discontinued.

Currently, the Secretary of the Department of Health, Education, and Welfare has appointed a committee of 14 distinguished citizens selected for their interest in civic affairs and broad knowledge of consumer, industry, and legal problems to evaluate the efficacy and adequacy of enforcement of the Food, Drug, and Cosmetic Act. The purpose of this committee is to make recommendations as to the amount and kind of enforcement of the act and related statutes which will best serve the interests of the country.

The FDA is responsible for commodities costing over $50 billion in domestic commerce and $3 billion in imports annually, for which products the public spends approximately one-fourth of the average family income. There are about 96,000 processing and manufacturing plants and warehouses, not to mention thousands of retail establishments handling products subject to the act. Enforcement is necessarily very selective. With the current inspectional staff only about 9,000 plants can be inspected annually. Consequently, each outlet can be reached only about once in 10 years, except that some with a history of violative practices or who are operating in critical fields must be visited much oftener, which makes the average even greater for others. With an annual appropriation of about 3.25 cents per person in the United States the FDA has a herculean task to insure the purity, safety, and truthful labeling of foods, drugs, devices, and cosmetics offered for use by man and other animals to prevent disease and protect their health. This is a demanding task which requires the help and advice of public health officers to insure safe and nutritious foods and safe and effective drugs. This is a joint responsibility in which the health officer needs primarily a full understanding of public health implication and of the resources available for adequate supervision and control.

(The editor records his appreciation for assistance from the FDA in the preparation of this editorial.)

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Filming a Community TB Program

"It Could Happen To You" depicts life in a tuberculosis hospital primarily and also shows a community tuberculosis control program in action. The film is designed to explain tuberculosis and its control to the public and to describe facilities the community has for combating this public health problem. It is intended for a wide audience—parent-teacher associations, civic groups, and the general public.

Community cooperation made production of "It Could Happen To You" possible at about one-fourth what it would have cost commercially. Producers were the Richmond, Va., Department of Public Health and the Richmond and the Henrico County Tuberculosis Associations, which provided supplies and materials. The city's Department of Recreation and Parks cooperated by providing technical information and recruiting local volunteer acting talent. WRVA Studios made available facilities to assist in sound recordings, etc. Print available from Capitol Films Laboratories, Washington, D. C. Price not stated.

California Air Pollution Report

"Clean Air for California" is the initial report of the Air Pollution Study Project of the California State Health Department (see A.J.P.H. April, 1955, p. 508). Begun in October, 1954, under the direction of Lester Breslow, M.D., this initial report was presented to Governor Knight on March 1 by the state director of health, Malcolm H. Merrill, M.D.

The report discusses briefly the history and nature of air pollution, its influence on health, engineering remedies now available, and a look into the future. The nine-point recommendations include recognition of air pollution as a state concern with health aspects paramount, continued research, establishment of a fact-finding program on the causes and effects of air pollution, and assistance to local governments in establishing and maintaining control programs.

The report is an excellent example of the art of printing. Text and illustrations are clear cut; the numerous technical charts stand out in sharp relief. Included is a directory of air pollution control agencies as well as an extensive bibliography of bibliographies, reports, papers, and laws.

Cooperating with the Health Department in the study, in addition to the Public Health Service and Los Angeles City and County Health Departments and Boards of Education, were the Air Pollution Foundation, the Stanford Research Institute, and the California Institute of Technology, among others.

Available from the California State Department of Health, 2151 Berkeley Way, Berkeley 4.

Pennsylvania School Health Service

"School Health Services" is the report of a special subcommittee on school health problems of the Joint State Government Commission to the General Assembly, Commonwealth of Pennsylvania. The commission was created in 1937 as a continuing agency for the development of facts and recommendations on all phases of government for the use of the General Assembly. Samuel M.

Wishik, M.D., professor of maternal and child health, Graduate School of Public Health, University of Pittsburgh, was chairman of a nine-man Medical Advisory Panel which "developed all statements pertaining to medical practice and medical opinion."

The report represents a constructive critical review of many of the well meaning but outmoded laws and practices pertaining to school health services in the state. The recommendations represent an outstanding condensation of what are currently considered desirable practices in the school health field. The basic recommendation is that an integrated school health program be placed under the administrative supervision of the state secretary of health. Currently, school health services are administered by three state departments—health, education, and public assistance—and by local school districts. Present (1953) cost of the program is over $7,000,000, about two-thirds of which is borne by the Commonwealth. 450 Capitol Bldg., Harrisburg, No information on out-of-state distribution.

Coordinating Long-Term Care Services

As an example of integration of services and facilities for the care of the long-term patient as recommended by the Commission on Chronic Illness, the Chronic Illness Newsletter of May describes such coordination in a number of institutions under Jewish auspices. Varying approaches and experimentation are indicated. "However the varying approaches to the problem . . . have one common objective; namely, the further emphasis of the emerging role of the general hospital as the center of medical services in the community. The pressure for increased use of existing resources is likely to result in more experimentation and closer integration." Those who have responsibility for working out guideposts for local communities will find a wealth of suggestive material in this issue. Commission on Chronic Illness, 615 N. Wolfe St., Baltimore 5, Md.

Vacation and Good Health

At the beginning of the vacation season Consumer Reports, the monthly Bulletin of Consumers Union (Mount Vernon, N. Y.), reprints "Health Guides for Travelers." The article is particularly designed for travelers abroad and has simple authoritative information on how to avoid the dysenteries, what immunization rules are, how to get medical care in a foreign country, and what drugs and remedies to take along. Many of the suggestions, particularly as to moderation in food and sightseeing serve equally well for domestic vacationers.

Nutrition Education Opportunities

Numerous examples of how health and nutrition education can be imaginatively included in the regular school curriculum and other normal activities of living are found in the April 25 issue of Nonfat Dry Milk Information Service. For example, the Bronx Nutrition Committee placed nutrition leaflets in laundromats during nutrition week. It sponsored 35 exhibits in the public library of the area. A food unit in a fifth grade grew out of discussions of famous scientists. Pasteur led to hygienic milk, Florence Nightingale to professional nursing, and finally the children ranged to a discussion of WHO. An annual health inventory is carried on in another school.

The Information Service is distributed occasionally by the Starlac Division, Borden Company, 285 Madison Ave., New York 17, N. Y.

PTA Volunteer Project in Minnesota

A PTA project grew out of the number of times the Suzies in a school in Hennepin County got sick in school. With only a part-time nurse, the sick child was often left alone in the nurse's office until the family could come for her. So the PTA organized a group of 50 volunteer mothers each serving about one day in two months. The volunteer "nurse," who is on duty daily from the first to the last recess, takes care of such emergencies as skinned knees and bee stings and stays with a sick child and tries to reach the parents. The by-product—mothers get better acquainted with the school and its health problems.

Winning Safety Film in Circulation

"Devil Take Us" was released on June 17, to be in active circulation during the months when highways are the most crowded. A two-reel subject, the picture is said to be a "camera-eye view of the highway safety problem as seen in all its grim reality by an officer of the California Highway Patrol."

"Devil Take Us" won the 1954 annual safety award of the National Committee on Films for Safety, on which the American Public Health Association has representation. It also received the Liberty Mutual trophy award and documentary nomination from the Academy of Motion Picture Arts and Sciences.

RKO Pictures has shipped an advance print to each of its 32 United States and six Canadian branches with instructions to screen it on request for civic officials, the press, and representatives of groups interested in highway safety education.

Public Health Survey of Rochester

Public health has been under scrutiny in Rochester and Monroe County, N. Y., by a 17-member survey staff headed by Ira V. Hiscock, chairman, Department of Public Health, Yale University. The study was conducted for the Survey Advisory Committee of the Rochester Community Chest.

The report of the study was published in March, 1955. Its 68 pages are made up almost entirely of detailed recommendations on 12 separate subjects from alcoholism to rehabilitation. There are only five broad recommendations for strengthening the over-all program. The first two are related, that the Health Division of the Council of Social Agencies be extended to the entire county and be strengthened by more lay and professional representation and by the employment of an able executive secretary. The second is that a county health department serving the entire county be organized, properly staffed and financed, and function as an independent operating unit. Other broad recommendations are for reducing substandard housing, perhaps creating a housing authority; expanding the rehabilitation program; and developing a central health education agency.

A Study of Public Health in Rochester and Monroe County, New York. Survey Advisory Committee, Rochester Community Chest, Rochester, N. Y. No information as to price.

Some Plain Speaking on Security

Though not directly concerned with the world of public health, the present situation with respect to security and loyalty cannot fail to touch nearly every aspect of life. Hence readers of the Journal may wish to see the April issue of the Bulletin of the Atomic Scientists. This is a special issue devoted to "Secrecy, Security, and Loyalty." Here the scientists, the experts in public opinion, the psychologists, the legal experts, as well as French and British commentators analyze our federal security system, indicating what it is doing for security

and what its effects are for individuals and for science.

Public health workers, particularly in the administrative, mental hygiene, and health education fields, owe it to themselves and their work to be abreast of the security situation and its implications.

Equipment for Handicapped

What is reported to be the first of its kind in the country, is a Community Equipment Pool consisting of such special items as wheel chairs, pushwalkers, relaxation chairs, patient lifts, etc., for physically handicapped people in Chicago. The pool was developed by a Committee on Handicapped of the Welfare Council of Metropolitan Chicago. The pool acquires, maintains, and loans equipment to health, welfare, vocational rehabilitation, and other agencies for their clients. During the first year of operation, 44 pieces of equipment were used by 66 persons in the city. Further information from Alexander Ropchan, Executive Secretary, Health Division, Welfare Council of Metropolitan Chicago at 123 W. Madison Ave., Chicago, Ill.

NAM Guides Handicapped Employment

"Guide for Employers in Hiring the Physically Handicapped" is an outline of "successful techniques for utilizing the abilities (not disabilities) of the handicapped through sound placement on the job." It was prepared by the Employee Relations Division of the National Association of Manufacturers in response to requests from its membership as to how to go about hiring more handicapped employees.

Although the guide is based largely on manufacturing experience, the ideas are said to be "applicable to all segments of the economy" and helpful to employers in other fields.

This should be a useful tool for public health personnel offices and as a resource for employers cooperating in a community vocational rehabilitation program, National Association of Manufacturers, 2 East 48th St., New York 17, N. Y.; 50 cents.

Worth Acquiring

"The World the Handicapped Live In" is a special issue of "Thumbs Up," the occasional publication of the Institute for the Crippled and Disabled in New York. It is an excellent guide both to special needs of the variously disabled and to the rehabilitation facilities available for them. Its purpose is to give the able-bodied some understanding of what it is like to be handicapped because such understanding is a major factor in bettering the lot of the disabled. The pamphlet is liberally illustrated with photographs. It is full of both hope and pathos.

Institute for the Crippled and Disabled, First Ave. and 23rd St., New York 10, N. Y.

"Your Future and You" has for its theme that with planning for the future the years ahead can be bright. One need not lose one's health with age, one need not be useless, each age has its "own special fascinations and rewards." There are suggestions on food, safety, hobbies, regular physical examinations, and many others. In an attractive two-color job with bright humorous illustrations, the 20-page pamphlet is published by and available from the Metropolitan Life Insurance Company, One Madison Avenue, New York. Free.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Needed Research in Health and Medical Care—A Bio-Social Approach—By Cecil G. Sheps, and Eugene E. Taylor. Chapel Hill, N. C.: University of North Carolina Press, 1954. 216 pp. Price, $5.00.

This is a provocative report. It is based upon the discussions which took place in a seminar meeting of 47 men and women—all scientists, but from different settings and working in different fields. This meeting differed from many of the now so popular interdisciplinary conferences in having a fairly carefully prepared agenda with a number of appropriate reports prepared and distributed before the seminar. The report itself is distinguished by the fact that it is a directed and purposive report, designed to do more than give the reader an undisciplined feel of the conference, but rather to provide an intelligible and orderly personal summary of three days of discussion.

The report is provocative because it challenges today's health workers to assume some new and logical interests and responsibilities; because it is realistically critical of many of the current organizational and financial approaches to research; and because it brings together many ideas on the health areas in which research is needed. There is, in general, a welcome escape from the current overemphasis on individual motivation, attitudes, and feelings in the down-to-earth discussion of the fields of biosocial research. The section on problems of financing should be required reading for both grantees and grantors (potential, that is).

Those already involved in research on the social aspects of health and health services will find some help and hope in the two chapters on methodology and organizational problems. And, despite the rather clear delineation of the multitude of problems of research in this hybrid area, there is more than enough tempting bait offered the research-minded, serious health worker to stimulate thought and action. We imagine, for example, that it should be hard for a good and modern health officer to avoid thinking "this means our department" when he reads the description of the community laboratory.

This is not a book for Sunday afternoon. Since it presents an accurate picture of a conference as viewed by the authors, it is fairly technical and not always easy reading. It is nevertheless required reading for the growing number of participants and lookers-on in this new field. JONAS N. MULLER

Education in a Transition Community—By Jean Grambs. New York: National Conference of Christians and Jews (381 Fourth Ave.), 1954. 124 pp. Price, $.25.

"The elimination of statutory segregation in public education not only provides new opportunities for achieving the American ideal but also confronts the citizens of communities with grave problems."

This pamphlet presents, with maturity, the problem of racial, ethnic, and economic segregation in all regions and areas of the United States. Basically a "how-to-do-it" manual for school administrators, teachers, parents, and community leaders, it is gauged to the needs of public schools. The writer displays depth of understanding and experience in many areas in the United States where segregation occurs. Keen insight is dis-

played into the implications of the decision of the U. S. Supreme Court on May 17, 1954, which decreed segregation to be unconstitutional. Dr. Grambs has documented in this pamphlet the fact that the problem of segregated schools is not restricted to any one portion of the United States.

The pamphlet establishes the American scene both in school and community and proceeds in a logical fashion to establish steps in planning and carrying out integration. Five case reports on integration are presented, showing experiences with different kinds of segregation and in widely scattered communities throughout the country which are fertile sources of ideas for local application. The partial listing of national organizations offering services in the area of integration and the select bibliography should be helpful to the school systems seeking assistance in their problems of integration.

The volume is recommended as helpful material to community groups interested in integration, as well as to school personnel. JOHN E. BAKER, JR.

The Vitamins: Chemistry, Physiology, Pathology (Vols. II and III) —Edited by W. H. Sebrell, Jr., and Robert S. Harris. New York: Academic Press (125 East 23rd St.), 1954. 766 and 665 pp. Price, $16.50 and $15.00.

A review of the first volume of this text will be found in the Books and Reports section of the American Journal of Public Health for January, 1955. The reader is referred to this article for a brief description of the form and scope of the presentations. Volume II covers choline, the vitamin D group, the essential fatty acids, the inositols, the vitamin K group, niacin, and pantothenic acid; while Volume III includes chapters on p-aminobenzoic acid, pteroylglutamic acid, pyridoxine, riboflavin, thiamine, the tocopherols, and new and unidentified growth factors. Everywhere the coverage is complete, well organized, and replete with references to reviews and to the original literature. Each volume has its indexes by subject and author. The reviewer is impressed with the way in which individual chapters and parts of chapters present a complete picture without unnecessary repetition in those instances where a subject crosses chapter boundaries.

The publication of these three volumes places in the hands of the advanced student or research worker an authoritative review and synthesis of our present knowledge of the vitamins. Coverage is so uniformly good that it is not possible for the reviewer to select individual sections for particular commendation. The editors, authors, and publishers should all receive a vote of thanks.

A. HUGHES BRYAN

Gezondheidsproblemen bij bejaarden (Health Problems of the Aged). —By R. J. Van Zonnefeld. Assen, Netherlands: Van Gorcum and Company N.V., 1954. 248 pp. Price, bound, f 8.25; paper, f 7.25.

The importance of investigating the problems of old age certainly needs no justification at present. Aging of the population, that is, a relative and absolute increase in the number of old people in the countries of Western Europe and the United States has aroused interest and anxiety concerning the future implications of this phenomenon. The reasons for an aging population are clear: better socioeconomic conditions, improved medical care and hygiene so that mortality at young ages has decreased, and a lowered birth rate. The problems of old age are manifold (medical, social, political, economic, psychologic), but only a few large-scale studies (Sheldon, Adams, and Cheeseman; Havighurst; and Albrecht) have been undertaken to obtain a picture of the physical and mental condition of a large

number of aged men and women in a given population. For this reason the present report is all the more welcome.

This survey was carried out in Groningen in the Netherlands under the sponsorship of the Department of Preventive and Social Medicine of the University of Groningen. The purpose of the survey was to determine the health status of a carefully selected sample of men and women aged 65 and over; to find out what impairments and defects these people had; to establish how they had adjusted to such defects, particularly in relation to the tasks of daily life; and finally to try to clarify them according to health status and with regard to those sociomedical provisions considered most suitable for the group. The surveyed population consisted of eight samples selected randomly and totaling 3,000 persons. The survey was carried out under the supervision of the author by 70 medical students who had completed their studies and were ready to take their final examinations. An interview questionnaire was used to obtain information. Additional information was obtained from relatives or physicians.

The report contains a great deal of detailed information and only selected items can be mentioned in a short review. Here are some findings. A relatively large number of men aged 65–70 were still working. Most of these were in the higher social classes. With advancing age more people were found living dependent on others. About half the group received old-age assistance. Nearly three-quarters of the sample belonged to sick funds. In general, the oldest persons did not have more complaints about their health than the younger members of the group. Women complained more than men. There were no differences between social classes. For 9.5 per cent of the persons in the sample, sociomedical provisions now in existence were inadequate. Finally, the author divides the kinds of provisions deemed suitable from a sociomedical view into five categories: accommodation at home without help; accommodation at home with simple daily help; homes for the aged with complete provision; nursing homes and long-stay establishments for those aged persons for whom no further recovery can be expected; and finally, general hospitals for those who are acutely ill and mental hospitals for those requiring such care.

This is a solid contribution to the medical and social problems of the aged and is recommended to all concerned with these matters. There are extensive summaries in German, English, and French. The tables and graphs also have English translations and the basic interview schedule is also translated. There is a bibliography, but unfortunately no index. GEORGE ROSEN

Poliomyelitis. Monograph Series No. 26, World Health Organization—By Robert Debre, et al. New York: Columbia University Press (2960 Broadway), 1955. 408 pp. Price, $8.00, cloth.

This monograph was written by a group of American and European authors who are masters in their various fields. It is an excellent text for those wishing a careful review of the latest knowledge of poliomyelitis without having to read the voluminous literature on the subject. The material is divided into epidemiology, clinical aspects, virology, immunology, and control. As a result of our present experience with Salk vaccine, several chapters will soon need to be rewritten and perhaps new chapters added, for our knowledge of poliomyelitis is now being acquired with great rapidity, albeit with some trauma to the populace and to those of us who must cope with the present unhappy situation. In this respect, the chapter by Sven Gard on the virus of poliomyelitis and its inactivation is of

considerable immediate interest. American readers would have preferred more extensive coverage on the subject of killed virus vaccines. Since all of the authors on the clinical aspects of the disease are foreign, the American reader will encounter references to apparatus with strange and unfamiliar names.

LLOYD FLORIO

When Your School Board Meets—By Daniel R. Davies and Kenneth F. Herrold. New London, Conn.: Croft Publications, 1955, 44 pp.

This 44-page pamphlet written by two professors at Teachers College, Columbia University, who have had special training and experience in group dynamics, may be of help to the hospital or health agency administrator who works with lay boards. Although, as indicated in the title, it is developed primarily for school boards, many of its suggestions and recommendations could be of value to any professional administrator who works under a lay board. The bibliography, in an agreeable departure from customary practice, is placed in the side margins and includes an explanatory paragraph with each reference.

EDWARD PRESS

People of the Shadows: Studies of Mortality in Cincinnati—By Floyd P. Allen. Cincinnati, Ohio: Public Health Federation (312 W. Ninth St.), 1954. 47 pp.

The first comprehensive study of Cincinnati's mortality statistics was made 25 years ago by the Public Health Federation. This third such report is a review of the years 1949–1951, a comparison with the 1929–1931 and 1939–1941 periods, and an analysis of "the causes behind the causes of death" with suggestions for local improvement in mortality due to preventable causes.

On the whole, significant declines in deaths from acute communicable diseases have paralleled an increasing toll from noninfectious causes (particularly cardiovascular diseases, cancer, and diabetes) with little improvement in the death rate for accidents. However, specific death rates varied considerably within the city.

The Basin area in the oldest part of Cincinnati comprises about one-seventeenth of the present city and accommodates one-fourth of the total population, for the most part in substandard dwelling units; slums have been replaced by good low-rent housing in one small section. Death rates inside and outside the Basin were different, remarkably different in the poorest Basin housing compared with the best housing outside. In the Basin area babies had half the chance of living to one year that babies had in the rest of Cincinnati, and this infant mortality discrepancy was as great as 10 years ago. The fatality rate for home accidents was three times as high in the Basin as elsewhere in the city and five times as high in the worst housing in the Basin as in the best housing outside. Differences in death rates for tuberculosis, still a major health problem in the Basin, and pneumonia were more pronounced. The tuberculosis rate was 30 times as high in the section of poorest housing as in the section of best housing and the pneumonia rate eight times as high. There were no appreciable differences in rates inside and outside the Basin for the noninfectious diseases common to the older ages.

Despite well recognized difficulties in a demonstration of the relationship between mortality, or morbidity, and any single influence, there appeared to be a "correlation between bad housing and unfavorable death rates that cannot be discounted." This relationship was considered even more credible because of the striking reduction in deaths from tuberculosis in the small rehabilitated Basin area still surrounded by slums.

ELEANOR WATKINS

Care of Laboratory Animals—By Subcommittee on Diagnostic Procedures and Reagents and approved for publication by the Coordinating Committee on Laboratory Methods and by the Committee on Research and Standards. Prepared by C. A. Slanetz. New York: American Public Health Association (1790 Broadway), 1954. 32 pp., illus. Price, $.75.

This manual was prepared as a simplified guide for the animal caretaker and "as a start toward improving the care of laboratory animals." Basic facts concerning the care and maintenance of the commonly used laboratory animals are presented in outline form.

It is not intended for the research worker or individual interested in extensive information and should be of little value to experienced animal caretakers. Some of the technics and cages described are not as modern as they could be, but in general the recommendations concerning feeding, watering, and caging are sound, although very elementary. The section on diseases, especially of rats and mice, is far too brief and could be misleading. There is no information on breeding and, except for the special handling of cotton rats, nothing on the handling of the various species. The bibliography, consisting of only four references, even though well selected, is extremely inadequate.

Because the usual criticism of the care given to laboratory animals concerns overcrowded and dirty cages, it is difficult to see how the suggested capacity of as many as five adult rats in a 10″ x 14″ cage, and the suggestion that small laboratory animal cages be washed and sterilized "approximately once a month, or at the close of the experiment, or when animal dies," could be considered as a start toward improving the care of laboratory animals.

With some modification, the manual could be useful as an outline for training personnel with little or no previous animal care experience. R. J. FLYNN

Education for Later Maturity—By Wilma Donahue. New York: Morrow (425 Fourth Ave.), 1955. 338 pp. Price, $4.50.

The professional educator has not been behind the physician, sociologist, or economist in a concern over the actual and proportional increase of elderly people in our population. What to do that would make the later years of life happy, zestful, and socially useful through educational means is still in an experimental stage. "Guiding principles" are taking shape and practical programming has sufficiently developed to well warrant this "handbook" on tried methods and reports of progress in the United States.

Thirty-one leaders in adult education and from other fields share their experience and ideas in eight well written chapters. More than half the book is devoted to "educational programming." Here reports of educational activities for the aging and their evaluation are made by authorities from public schools, colleges, libraries, community, state and federal welfare agencies, churches, occupational groups, and others. It is an impressive showing of what is being done educationally for the aging and of needs still to be met.

Workers in the field of public health may well read this book. They will find suggestions for tie-ins with some of the educational programs.

RAYMOND P. KAIGHN

Studies in the Social Services. History of the Second World War—By S. M. Ferguson and H. Fitzgerald. New York: British Information Services (30 Rockefeller Plaza), 1954. 367 pp. Price, $5.25.

Studies in the Social Services is one of the volumes in the series of United Kingdom Civil Histories. The series was

started as a result of a decision of the War Cabinet in 1942 when a team of historians, sociologists, and economists were given access to official sources and documents to prepare studies of government policy and experience during World War II. The present volume is a successor to "Problems of Social Policy" by Richard M. Titmuss which appeared in 1950. It deals in greater detail with issues that could only be touched upon within the broader compass of the earlier volume.

Here the fundamental theme is the family and its problems in time of crisis. An introductory chapter examines the growth of government action in relation to the family between the wars and during the second World War and the transformation of family life during this period. Fathers were absent in the Armed Forces for years, mothers went to work in factories, and evacuation separated families and friends. As the bonds of everyday life were torn apart, as the assuring supports of familiar ties collapsed, the government was compelled to step in and take action. At the core of the problems concerning the family lay the welfare of mothers and children and it is largely with a number of these problems that this volume is concerned. The wartime maternity service, the plight of the unmarried mother and her child, infant health and welfare services, day nurseries for the children of working mothers and residential nurseries for children in need of full-time care—these problems occupy the major portion of the book. In addition, there is a chapter on tuberculosis as a family problem, and a final chapter on the difficulties encountered in staffing the nursing services. A number of appendexes provide statistical data on the various aspects of the maternity and nursing services.

Prewar plans had visualized a retreat of the civilian social services when war came. In actual fact just the opposite happened. What the family and neighborhood could no longer do for themselves, the state had to help them do. The need to maintain morale and industrial efficiency brought improvement and expansion of the social services. Furthermore, many of the prewar services were based on the old Poor Law and the workhouse tradition, and therefore were unacceptable to many of the people who needed help in wartime. As a result some of the services had to be built on new foundations. These advances in social services during the war could not be retraced later and the stage was set for the advance to the welfare state.

This is an interesting and valuable book for anyone concerned with problems of health and welfare in time of crisis, especially with those that affect the family. It is a worthy successor to Titmuss's earlier volume and is recommended to all readers of this Journal.

GEORGE ROSEN

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ANXIETY AND STRESS. Harold Basowitz, et al. New York: McGraw-Hill, 1955. 320 pp. Price, $8.00.

BLUTKRANKHEITEN. Hanns Fleischhacker. New York: Intercontinental Medical Book Corporation. 247 pp. Price, $7.50.

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CASUALTY DEPARTMENT, THE. T. G. Lowden. Baltimore, Md.: Williams and Wilkins, 1955. 278 pp. Price, $7.50.

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CLINICAL INTERVIEW, THE. VOL. II—THERAPY. Felix Deutsch and William F. Murphy. New York: International Universities Press, 1955. 335 pp. Price, $7.50.

CULTURE AND MENTAL DISORDERS. Joseph W. Eaton. Glencoe, Ill.: Free Press, 1955. 254 pp. Price, $4.00.

CYTOLOGIE DES WEIBLICHEN GENITALKARZINOMS. Edmund Schuller. New York: Intercontinental Medical Book Corporation, 1955. 129 pp. Price, $6.00.

DUST IS DANGEROUS. C. N. Davies. New York: John de Graff, 1955. 116 pp. Price, $4.50.

EFFECT OF SUGAR SUPPLEMENTS ON DENTAL CARIES IN CHILDREN, THE. J. D. King, et al. London: Her Majesty's Stationery Office, 1955. 55 pp. Price, 4s. net.

EVALUATION IN MENTAL HEALTH. Report of the Subcommittee on Evaluation of Mental Health Activities, Community Services Committee, National Advisory Mental Health Council, PHS, U. S. Department of Health, Education, and Welfare. Washington, D. C.: Superintendent of Documents, 1955. 292 pp. Price, $2.00.

FACTS ON THE MAJOR KILLING AND CRIPPLING DISEASES IN THE UNITED STATES TODAY. New York: National Health Education Committee, 1955.

FEEDING YOUR CHILD. Samuel M. Wishik. New York: Doubleday, 1955. 223 pp. Price, $3.50.

FIELD OF SOCIAL WORK, THE. Arthur E. Fink, et al. (3rd ed.). New York: Holt, 1955. 630 pp. Price, $5.25.

FIRST INTERNATIONAL SYMPOSIUM ON THE CONTROL OF INSECT VECTORS OF DISEASE. Instituto Superiore Di Sanita. Springfield, Ill.: Thomas, 1955. 396 pp.

FLAME IN THE STUBBLE. Valerie Hoeven. Boston, Mass.: Bruce Humphries, 1955. 284 pp. Price, $3.50.

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GOOD HEALTH FOR YOU, YOUR FAMILY, AND YOUR COMMUNITY. Nelson S. Walke, et al. New York: McGraw-Hill, 1955. 415 pp. Price, $4.75.

INDUSTRIAL HYGIENE FOUNDATION—19th ANNUAL MEETING, 1954. Pittsburgh, Pa.: Industrial Hygiene Foundation of America, 1955. 241 pp. Price, $5.00.

LET'S EAT RIGHT TO KEEP FIT. Adelle Davis. New York: Harcourt, Brace, 1955. 322 pp. Price, $3.00.

MANAGEMENT OF ADDICTIONS. Edited by Edward Podolsky. New York: Philosophical Library, 1955. 413 pp. Price, $7.50.

MANUAL ON INDUSTRIAL WATER. Prepared by ASTM Committee D-19 on Industrial Water (second printing with new and revised methods—1954). Philadelphia, Pa.: American Society for Testing Materials, 1954. 430 pp. Price, $5.00.

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PERINATAL MORTALITY IN NEW YORK CITY. A STUDY OF 955 DEATHS. New York Academy of Medicine, Analyzed and Reported by Schuyler G. Kohl. Cambridge, Mass.: Harvard University Press, 1955. 112 pp. Price, $2.50.

PHYSICAL EDUCATION FOR HIGH SCHOOL STUDENTS. Washington, D. C.: American Association for Health, Physical Education, and Recreation, 1955. 404 pp. Price, $3.00 cloth, $2.50, paper.

PHYSICIANS' OFFICE ATTENDANTS MANUAL. Henry B. Gotten and Douglas H. Sprunt. Springfield, Ill.: Thomas, 1955. 93 pp. Price, $3.75.

PRACTICAL MEDICAL MYCOLOGY. Edmund L. Keeney. Springfield, Ill.: Thomas, 1955. 145 pp. Price, $3.75 paper, cloth, $4.50.

PRINCIPLES OF MEDICAL STATISTICS. A. Bradford Hill. New York: Oxford University Press, 1955. 314 pp. Price, $4.00.

PROLONGED AND PERPLEXING FEVERS. Chester S. Keefer and Samuel E. Leard. Boston, Mass.: Little, Brown, 1955. 248 pp. Price, $5.50.

PSYCHISCHE HYGIENE. Ernst Brezina and Erwin Stansky. New York: Intercontinental Medical Book Corporation, 1955. 282 pp. Price, $8.25.

PSYCHOLOGY IN NURSING. Wendell W. Cruze. New York: McGraw-Hill, 1955. 494 pp. Price, $5.50.

SARGENT GUIDE TO SUMMER CAMPS FOR BOYS AND GIRLS, THE. (10th ed.). Boston, Mass.: Porter Sargent, 1955. 136 pp. Price, $1.10 paper, $2.20, cloth.

SERVICE DIRECTORY OF NATIONAL ORGANIZATIONS AFFILIATED AND ASSOCIATED WITH THE NATIONAL SOCIAL WELFARE ASSEMBLY, 1955. New York: National Social Welfare Assembly, 1955. 103 pp. Price, $1.25.

SHOULD THE PATIENT KNOW THE TRUTH? Edited by Samuel Standard and Helmuth Nathan. New York: Springer, 1955. 160 pp. Price, $3.00 hard cover, $2.00 soft cover.

STUDY OF PROGRAMS FOR HOMEBOUND HANDICAPPED INDIVIDUALS. Office of Vocational Rehabilitation, Department of Health, Education, and Welfare. Washington, D. C.: Gov. Ptg. Office, 1955. 123 pp.

STUDYING YOUR COMMUNITY. Roland L. Warren. New York: Russell Sage, 1955. 385 pp. Price, $3.00.

SURVEY OF CLINICAL PEDIATRICS. Lawrence B. Slobody (2nd ed.). New York: McGraw-Hill, 1955. 502 pp. Price, $9.50.

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WORKING CONFERENCE FOR NURSES ON THE PUBLIC HEALTH ASPECTS OF VENEREAL DISEASE CONTROL. MAY 9–15, 1954, CHAPEL HILL, N. C. Chapel Hill, N. C.: University of North Carolina School of Public Health, 1955. 156 pp.

YOUR ANNUAL MEETING. Bernard Carp. New York: National Publicity Council, 1955. 167 pp. Price, $3.50.

YOUR TAPE RECORDER. Robert and Mary Marshall. New York: Greenberg, 1955. 278 pp. Price, $4.95.

A Selected Public Health Bibliography with Annotations

Most Like the Work—Information obtained from public health people (1,648 in six states) about what they do for a living was elicited by trained interviewers, using a detailed universal code for classifying the data. Experience in developing and testing investigative instruments proved more significant than the collected data, revealing as the latter proved to be: this is one conclusion.

COHART, E. M., et al. The Public Health Worker and His Job. Pub. Health Rep. 70, 5:447 (May), 1955.

Never Understimate, Etc.—The picture of the long and rocky road some women traveled to induce nearby communities to provide themselves with a mental health facility may have some inspiration in it for other places that have not yet done any traveling toward that worth-while goal. The current joint effort of official and voluntary agencies seems to promise a degree of stability, it is alleged.

COLLINS, A. H. Case History of a Mental Health Clinic. Pub. Health Rep. 70, 5:479 (May), 1955.

Worsening Social Problem—Venereal infection rates among adolescents vary inversely with educational status. This is one encouraging aspect of an otherwise gloomy picture. There are indications of current increases of venereal diseases in many states, involving higher percentages of teen-age youngsters.

DONOHUE, J. F., et al. Venereal Disease Among Teen Agers. Pub. Health Rep. 70, 5:453 (May), 1955.

Study Still Needed—"It is important to know" conclude these researchers, "that retrolental fibroplasia does develop with considerable frequency in (small premature) babies exposed to low or moderate concentrations of oxygen for 5 to 10 days."

ENGLE, M. A., et al. Oxygen Administration and Retrolental Fibroplasia. Am. J. Dis. Child. 39, 4:399 (Apr.), 1955.

Pretesting Publicity Material—Usefully detailed is this account of the several steps followed to make clearly readable and interesting a publicity pamphlet describing ways the public health nurse helps a family. This is one of those matters we accept in principle yet are prone to forget in the heat of the production campaign.

FORD, M., and WILSON, A. B. Testing a Public Health Nursing Pamphlet. Nursing Outlook 3, 5:289 (May), 1955.

Wholesale Patch Testing—Three physicians, one nurse and 12 volunteers operating three lines of school children can patch test about 1,600 an hour. One physician can "read" about 600 an hour. In St. Louis County about 15,000 showed 658 positive reactions. Among 1,395 school reactors and their family contacts, 13 had active tuberculosis and an added dozen continue to be suspects.

GRAY, W. C. Mass Tuberculin Testing of School Children. J.A.M.A. 158, 1:8 (May 7), 1955.

Well Told Story—A stray dog brought terror to a southern county. Before the terror was ended many household pets had been sacrificed, and a number of people had undergone anti-

rabies treatment—never recommended lightly. It need not have happened.

HALL, J. B. Rabies Control. GP 11, 4:81 (Apr.), 1955.

Back to Nature—A unique feature of this discussion of training-for-childbirth and rooming-in is the reminder of the ways babies used to get themselves born in the not-too-gay nineties.

JACKSON, E. New Trends in Maternity Care. Am. J. Nursing 55, 5:584 (May), 1955.

Harsh Words—"Children from so-called good homes who recurrently steal, truant, set fires, or exhibit sexual aberrations are usually doing what their parents unconsciously wish and tell them to do." Without any weasling qualifications that is the way this report of a 10-year study begins. "Children are masters at sensing parental interest or gratification, however subtle, at a tale of naughtiness," the writer observes in passing.

JOHNSON, A. M. Individual Antisocial Behavior. Am. J. Dis. Child. 39, 4:472 (Apr.), 1955.

Visual Education Abroad—An entire issue of the one-and-only health educational journal is given over to the use and abuse of tools used in propagating public health information. Still pictures, mobile pictures, and moving pictures are some of the media included in this UNESCO cooperating symposium. You will find the entire discussion well worth the trouble it may take to ferret out this special edition.

JOHNSON, M. L., et al. Perception and Interpretation (and fifteen related papers). Health Ed. J. 13, 1:7, 1955.

People at Work—The writers in this "workshop" are talking to leaders who want to get the people started on any community program. The first essayist talks about how to begin, the second reports on his work in rural areas, the next describes neighborhood work in a great city, the fourth turns to suburbia. Community councils in non-urban Michigan follow, and then come reminders of the variety of groups available for community improvement. The discussion is rounded out first by an adult educator, and then by a widely experienced social worker. All of it is suggestive for the projective reader.

MCKAY, O., et al. Building Better Communities. Adult Leadership 4, 1:9 (May), 1955.

Continuing Hazard—"To prevent an occurrence of lead poisoning in children is to prevent a probable case of mental retardation or a possible death." "Elimination of lead paints from interior surfaces of houses (and all objects children handle) remains the essential preventive." The findings are from a Chicago study.

MELLINS, R. B., and JENKINS, C. D. Epidemiological and Psychological Study of Lead Poisoning in Children. J.A.M.A. 158, 1:15 (May 7), 1955.

Exposure Lessening—Admission examinations for TB are given to all incoming patients in most hospitals of Minneapolis. The percentages of medical graduates who become infected in hospitals have been cut from 15 to 10 in 10 years. The community program from which these results stem is usefully detailed.

MEYERS, J. A., et al. Tuberculosis in Physicians. J.A.M.A. 158, 1:1 (May 7), 1955.

Spectacular Happy Ending—The first patient on whom streptomycin was tried—a girl in a far advanced stage of tuberculosis—is now leading a normal, active life, the mother of three robust children. You see, there is some justice in nature, after all!

PFUETZE, K. H., et al. The First Clinical Trial of Streptomycin in Human Tuberculosis. Am. Rev. Tuberc. 71, 5:752 (May), 1955.

Taking Their Own Medicine—A survey of 4,000-odd members of the Massachusetts Medical Society reveals that a large number have stopped smoking. What they think about possible causal relationships between the weed and lung cancer and what they tell their patients is set forth in a number of revealing tabulations.

SNEGIREFF, L. S., and LOMBARD, O. M. Comparative Study of Smoking Habits of Physicians. New England J. Med. 252, 17:691 (Apr. 28), 1955.

Strictly Ad-Lib—A visiting nurse association has been putting on an informal, unrehearsed (weekly) television show as a feature of an established afternoon spot—yclept "Ladies Day Out." The news story about the series ends this way: "It has been said that the bumble bee, according to the laws of science . . . cannot fly, but because he cannot read he goes ahead and does it. Us, and the bumble bee!"

SPANGLER, R. W. We're on TV Every Week. Am. J. Nursing 55, 5:593 (May), 1955.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publication in which they appeared; the addresses are furnished for your convenience.

Adult Leadership, Adult Education Association of the United States, 743 N. Wabash Ave., Chicago 11, Ill.

Am. J. Dis. Child. (The American Journal of Diseases of Children), American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.

Am. Rev. Tuberc. (American Review of Tuberculosis), National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

GP, American Academy of General Practice, Broadway at 34th St., Kansas City 2, Mo.

Health Ed. J. (Health Education Journal), Tavistock House, Tavistock Sq., London, W.C. 1, England.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.

New England J. Med. (New England Journal of Medicine), Massachusetts Medical Society, 8 The Fenway, Boston 15, Mass.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Association News

EIGHTY-THIRD ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
KANSAS CITY, MO., NOVEMBER 14–18, 1955

Meetings of Affiliated Societies

Connecticut—The Annual Meeting of the Connecticut Public Health Association was held on May 18 in Newington under the presidency of Dorothy Wilson, R.N., Ed.D. Irma Biehuesen, R.N., M.P.H., was secretary. The program included a panel on food poisoning moderated by Erval R. Coffey, M.D., director of health of Greenwich, followed by presentations on infectious hepatitis by Robert W. McCollum, Jr., M.D., of New Haven, and on medical and pediatric aspects of fluoridation of water supplies by David E. Overton, M.D., Newburgh, N. Y. Herbert T. Wagner, M.D., regional medical consultant to the National Foundation for Infantile Paralysis, spoke on Poliomyelitis—What of the Future?

The first C.-E. A. Winslow Award by the association was presented to Friend Lee Mickle, Sc.D., retired director, Bureau of Laboratories, State Department of Health, Hartford, in recognition of his contributions to the public health in Connecticut.

William H. Upson, M.D., health officer of Suffield, is the new president.

Southern Branch and Louisiana—Pride in many of the institutions, customs, and history of the South was reflected in the theme of the joint meeting of the Southern Branch of the APHA and the Louisiana Public Health Association held May 11–13 in New Orleans, "Public Health Pioneering—A Southern Heritage." Further, 1955 marks the centennial of organized public health in Louisiana. Many of the papers and section programs centered around the general theme of the development of public health practices in the southern states.

Not only were the professional resources of the Southern Branch area drawn on liberally but also the natural advantages and facilities of New Orleans. Technical sessions covered a wide range of current public health subjects of interest—recruitment, home accidents, nutrition and cultural heritage, training, and many others. The social activities included a boat ride on the Mississippi River and a social evening at the Southern Yacht Club on the shores of Lake Pontchartrain.

As with other recent meetings of the Southern Branch, technical and scientific exhibits were among the valuable features. One morning of the scientific program was given over to "curbstone" sessions unique with the Southern Branch some five years ago. For these sessions 24 tables, each manned by experts, were set up in the Conference Hall, thus providing opportunity for the consultation on numerous public health problems.

This was the 23rd Annual Meeting of the Southern Branch and the 13th of the Louisiana Association. Registered

attendance was 600. J. W. R. Norton, M.D., North Carolina state health officer and president, Southern Branch, presided and George H. Hauser, M.D., director of laboratories, Louisiana State Health Department, represented the Louisiana Association as its president. New officers elected by the Southern Branch include:

President—Frank M. Hall, M.D., director, Alachua County Health Department, Gainesville, Fla.
Vice-Presidents—Leon Banov, M.D., health officer, Charleston City-County, S. C.
Ruth Hay, professor of public health nursing, North Carolina School of Public Health, Chapel Hill
Cassie B. Smith, associate director, Division of Health Education, Mississippi State Board of Health, Jackson
Secretary-Treasurer—H. E. Drumwright, chief, Public Health Inspection Services, Dallas Health Department, Tex.

The 1956 Annual Meeting of the Southern Branch will be held in Tulsa, Okla., at a date to be selected later.

The new officers of the Louisiana Association are:

President—Lloyd H. Methe, Lafayette
Vice-Presidents—S. J. Phillips, M.D., state health officer
Lucille Sawyer, Shreveport
Secretary-Treasurer—Margaret Moore, nutrition consultant, State Department of Health

Western Branch—The 22nd Annual Meeting of the Western Branch, American Public Health Association, was held in Phoenix, Ariz., April 19–22, under the presidency of Frank R. Williams of the Arizona State Department of Health. About 450 persons registered, coming from 11 western states in the United States, three western provinces of Canada, Alaska, Hawaii, and the Philippine Islands.

The program of the Branch meetings featured new developments in public health, the program of WHO, the solution of problems in state-local relationships, a symposium on public relations and many other papers, including some on civil defense, chronic diseases and rehabilitation, the transition of the health services of the Indian Service to the U. S. Public Health Service, with section programs on epidemiology and laboratory, sanitation, venereal disease control, records, and statistics, health education, and industrial hygiene. James A. Dolce, M.D., was chairman of the Program Committee.

The John J. Sippy Memorial Award was presented to Frank R. Williams for his achievements in a state-wide public health education program.

G. D. Carlyle Thompson, M.D., executive officer of the Montana State Board of Health, Helena, became president at the close of the meeting. Professor A. Harry Bliss of the School of Public Health, University of California, Los Angeles, was made president-elect. The secretary-treasurer, L. Amy Darter of the California State Department of Public Health Laboratory, Berkeley, was reelected. The 1956 meeting of the Western Branch will be held in Salt Lake City, Utah, May 30-June 2.

Puerto Rico Association Journal

The Puerto Rico Public Health Association has celebrated its 15th anniversary by establishing an official journal, Revista de la Asociacion de Salud Publica de Puerto Rico. The first issue, dated February, 1955, has an editorial and six scientific articles in Spanish and one short article in English. In the lead article, Dr. Guillermo Arbona, chief of the Department of Preventive Medicine and Public Health in the School of Medicine, describes the recent expansion of his department and the work carried on.

The Puerto Rico Association met in San Juan, February 1–5. The outgoing president was Dr. Esther Seijo de Zayas, the incoming, Dr. Luis Torres Aguiar.

On the program was a film workshop, "Using the Film in Mental Health Education," in which one of the participants

was Dr. Leona Baumgartner, health commissioner of New York City. Dr. Herman Hilleboe, president, brought the greetings of APHA to the inaugural session and spoke on "Public Health in the Future."

The growing industrialization of the island was noted in a session on "The Development of Nursing Service as an Important Factor in the Industrialization Program of Puerto Rico." This was led by Glenna W. Mars, industrial nurse consultant of the University of Pittsburgh.

Demand Increases for Health Career Materials

The recent distribution of the volumes "Health Careers Guidebook" and "Partners for Health" by the National Health Council to all secondary schools in the United States has resulted in a substantial increase in the number of requests received by the American Public Health Association office for more detailed reports about public health specialties. Thousands of copies of the reports on Educational Qualifications of

Administrative Personnel (NonMedical) in Public Health Agencies
Physical Therapists
Industrial Hygiene Personnel
Laboratory Workers
Executives of Voluntary Health Associations
Directors of Public Health Departments
Health Educators
Medical Administrators of Specialized Health Activities
Medical Social Workers
Nutritionists
Public Health Dentists
Public Health Nursing Personnel
Sanitary Engineers
School Physicians
Statisticians
Veterinarians

have been distributed in recent weeks in answer to requests from all parts of the country. The largest number of requests have been received from those interested in industrial hygiene, sanitary engineering, statistics, and the laboratory field.

As a service to the public, the Committee on Professional Education of the APHA, which originates these reports, makes them freely available to individuals, to employing agencies, to Civil Service and Merit System groups and various publications. Each of the reports has received approval of the Governing Council of the APHA.

The Committee on Professional Education calls the attention of all public health workers to the strategic importance of their responses to inquiries coming to them which have originated from this Health Careers project. In a good many places career counseling with groups has been possible in the case of students interested in nursing, in sanitation, in the public health laboratory, public health education, and in medicine and dentistry.

APHA membership application blank on page XXV

83rd ANNUAL MEETING

HOW TO MAKE HOTEL RESERVATIONS FOR THE KANSAS CITY ANNUAL MEETING

A HOUSING BUREAU will be operated by the Kansas City Convention Bureau for the 83rd Annual Meeting of the APHA in Kansas City, Mo., November 14–18. Since all requests for rooms will be handled in chronological order, you are urged to send in your reservation as quickly as possible on the form below.

Hotel	Hotel and Rates Single	Double	Twin
Hotels immediately adjacent to Auditorium:			
Aladdin	$4.00– 7.00	$6.00–10.00	$ 8.00–10.00
Continental	5.00– 7.00	7.00– 9.00	8.00–12.00
Dixon	4.00– 5.00	6.00– 7.00	8.00– 9.00
Kansas Citian	3.50– 6.00	5.50– 8.50	6.00– 8.00
Muehlebach	6.50–13.00	8.00–13.00	10.00–15.00
New Yorker	5.00–10.00	7.00–12.00	9.00–12.00
Phillips	6.00– 7.50	8.00– 9.50	9.00–11.00
President	5.00– 9.00	8.00–11.00	10.00–13.00
Senator	3.00– 6.00	3.50–10.00	8.00–15.00
State	4.00– 6.00	6.25– 8.25	7.50– 9.00
Hotels within three or four blocks of Auditorium:			
Pickwick	4.50– 7.50	6.00– 9.00	6.50– 9.50
Plaza	2.00– 3.50	2.50– 5.00	
Hotels within short taxi ride from Auditorium (approximately 45¢):			
Alcazar	2.50– 3.50	3.00– 5.00	
Ambassador	4.00– 6.00	5.50– 7.50	5.50– 7.50
Bellerive	5.00– 8.00	7.50–10.50	9.00–10.50
Town House (65¢ cab fare from Auditorium)	5.00– 9.00	7.50–10.00	8.50–14.00

Rates for suites available on request.

HOTEL RESERVATION FORM

MAIL TO: Miss Mary Nugent
Housing, Convention and Visitors Bureau
1030 Baltimore, Kansas City 6, Mo.

PLEASE MAKE RESERVATIONS NOTED BELOW: (Please Print or Type.)

First Choice ..... Hotel Arrival: ....., at ..... a.m. ..... p.m.

Second Choice ..... Hotel Departure ....., at ..... a.m. ..... p.m.

Third Choice ..... Hotel

..... Single room @ $..... ..... Twin Bedroom @ $.....

..... Double Bedroom @ $.....

NAMES OF ALL OCCUPANTS: ADDRESSES:

....

....

....

MAIL CONFIRMATION TO: Signed: .....

Address .....

.....
City Zone State

Confirmation will be mailed within 30 days of receipt of this form by the Division of Housing, Convention Bureau, Kansas City, Mo.

KANSAS CITY TOURIST COURTS, TRAILER CAMPS, AND MOTELS

Good motel rooms are available at prices ranging from $4.00–$7.00 per day for two, $12.00 for four, within easy distance of Kansas City. You will be assigned to good, convenient motel rooms if you will indicate below your interest in such. Motel reservations will be made by the Housing Bureau and confirmed by the motel.

All the following are members of the Kansas City Motel Association:

Ace of the Hi-Way Court	8216–71 Highway
Annette Modern Cabins	81 and 61 Highway
Arrow Court	Highway 24 and 71 Cutoff
B-B Lodge	Highway 40 and Blue Ridge Cutoff
Capital Service Station and Cabins	116 and 71 Highway
Clay Motel	4018 N. Oak
Collins Court	9501 E. New 40 Highway
Crown Motor Court	4340 State-Kansas City, Kans.*
Davidson Courts	115 and 71 Highway
El Cabanas	½ Mile East of City Limits on No. 50
Flicklin Tourist Court	3647 State-Kansas City, Kans.*
Four-Acre Motel	8220 So. 71 Highway
Hi-Way Motel	71 Highway and Bannister
Gables Motel	6831 State-Kansas City, Kans.*
Holiday Inn Hotel	US 40 and 71 By Pass (5 miles East of Kansas City, Mo., and 3 miles South of Independence, Mo.)
Johnson Motel Tourist Courts	107 St. and 71 Highway
Kozy Kourt	36 Terrace and New 40 Highway
Leeds Motel Courts	3707 Raytown Road
Putthoff's Modern Cottages	40 Highway and Blue Ridge
Rainbow Auto Court	5912 E. 50 Highway
Royal Auto Court	7831–69 Highway
Skyline Court	3531 N. Oak, N. Kansas City
Sky-Vu Motel	New 40 Highway and Marsh, N. Kansas City
U. Smile Station No. 1	Old 40 Highway and Raytown Road
U. Smile Motel	50 Highway at 58th Street
U. Smile Court	40 Highway and Skiles
Waight's Tourist Camp	79 and 50 Highway
West Haven Motor Court	5250 State-Kansas City, Kans.*
Wornall Motel Tourist Court	8215 Wornall
Young's Motel	5024 Merriam Drive, Kansas City, Kans.*

* Kansas City, Kans., is one mile from Kansas City, Mo.

MOTEL RESERVATION FORM

MAIL TO: Miss Mary Nugent
Housing, Convention and Visitors Bureau
1030 Baltimore, Kansas City 6, Mo.

Please assign Motel accommodations for ..... persons arriving on November ....., and leaving on November .....

NAMES OF ALL OCCUPANTS: ADDRESSES:

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MAIL CONFIRMATION TO: Signed: .....

Address .....

....
City Zone State

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association Office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the "Positions Wanted" portion of these pages.

POSITIONS AVAILABLE

Health Officer and School Physician—for the Town of Fairfield, Conn. Population 37,400. Starting salary $10,000. Full-time position. M.P.H. degree required. E. C. Sleigle, Chairman, Board of Health, Town of Fairfield or telephone Fairfield: Clearwater 9-4965.

Staff Nurses—for rural county giving a generalized public health nursing program. Must have a degree and experience, also must be eligible for California public health nursing credential. $341–$376. Reimbursement for use of own car. Roswell L. Hull, M.D., Director, San Benito County Health Department, Health Center, Hollister, Calif.

Supervising Public Health Nurse—with degree, required to carry part of work load for small county health department. Two other public health nurses. Salary range $4,200–$4,500 per annum. Car allowance. Dr. J. D. Heaslip, Director, Health Center, Hastings, Mich.

Public Health Nurses—Schoharie County Health Department, Schoharie, N. Y. County of 24,000 population, $3,000–$3,500, generalized rural nursing program. Car furnished. Director of Nursing, Schoharie County Department of Health, Schoharie, N. Y.

Qualified Public Health Nurses—Certificate equivalent. Rural and local health department staff, beginning salary $290–$320 depending on experience. Blue Shield-Blue Cross, social security, state retirement, employees' credit union, sick leave, and vacations. Write: Director, Division of Public Health Nursing, State Health Department, Cheyenne, Wyo.

Psychiatric Social Worker—New Child Guidance Clinic in West Bend, Wis., 33 miles from Milwaukee. Responsibility includes intake casework with parents of children in treatment, therapy of children, community consultation and education. Team of psychiatric social worker, psychologist, and part-time psychiatrist. $4,572. Master's degree with psychiatric sequence, plus two years' experience, some of which has been in child guidance. Amy Louise Hunter, M.D., State Board of Health, 1 West Wilson St., Madison 2, Wis.

Director of School Health—For Arlington, Va., public schools. (Located immediately across Potomac River from Washington, D. C.) Salary range $7,860–$9,610. For more detailed information, write: Charles J. Walsh, Assistant Superintendent in Charge of Personnel, 1426 North Quincy St., Arlington, Va.

Physical Therapists—California state government offers attractive salaries and choice of location to qualified therapists who are graduates of recognized school of physical therapy. Immediate employment for men at Veterans Home, near Napa, and also for men and women at hospitals for mentally ill and cerebral palsied children. Mail applications for nation-wide civil service examination by August 2, 1955.

Industrial Hygiene Engineers—to work in California state public health program. Work with local health departments on studies of potential industrial health hazards and develop programs for protection of adult workers from occupational hazards. Jobs require college degree in engineering and two years of general engineering experience, including one in public health engineering. California residence not required. Two vacancies, one in Berkeley, another in Los Angeles. Salary range $415–$505. Last day for formal application is August 5, 1955. Write at once for information. Recruitment Section, State Personnel Board, 801 Capitol Ave., Sacramento 14, Calif.

Public Health Physician—to be appointed assistant director of health and be in charge of Division of Preventable Disease Control for the Tacoma-Pierce County Health Department. Population 300,000. Salary range $795–$915. Experience and training in public health desired.

Public Health Statistician—to be in charge of statistical section of the Tacoma-Pierce County Health Department. Population 300,000. Salary range $345–$440. Experience or training in statistics required. Write to: C. R. Fargher, M.D., Director of Health, 2324 Pacific Ave., Tacoma, Wash.

International Health Vacancies

Chief Public Health Adviser—FOA Mission, Afghanistan. M.D. and M.P.H. degrees, plus experience in responsible local or state public health administration. Duties: to advise the Royal Afghan Ministry of Public Health on development of an expanded public health service, including establishment of a demonstration public health center for the Helmand Valley Area.

Chief, Public Health Division—FOA Mission, Indonesia. M.D. and M.P.H. degrees, plus experience in responsible local or state public health administration. Duties: to assist the Republic of Indonesia in the development of a modern public health control program and to train indigenous personnel, including the strengthening of academic institutions and training professional and subprofessional public health workers.

Chief Sanitary Engineer—FOA Mission, Afghanistan. B.S. in civil or sanitary engineering, plus experience in developing and directing a program of sanitary engineering. Duties: to advise the Royal Afghan Ministry of Public Health on the planning and development of the sanitary engineering aspects of a large multiple-purpose area development project, including the establishment and conducting of training programs.

Malariologist—FOA Mission, Indonesia. M.S. degree with training in parasitology and malariology, plus experience in malaria control, preferably in tropical area. Duties: to advise Indonesian malaria control officials on the planning, organization, and implementation of malaria control programs in Sumatra and on the training of malaria technicians and spray team supervisors.

All include a two-year tour of duty and salary augmented by cost of living allowance. Public Health Service, Division of International Health, Washington 25, D. C.

Public Health Engineers for Latin America—Ten positions open of which three (in Honduras, Uraguay, and Venezuela) must be filled by July, 1955. One in Colombia to be filled by October and six more by January 1, 1956, in Argentina, Cuba, Ecuador, Haiti, Mexico, and Peru. Essential qualifications include graduate training in public health and proficiency in Spanish (French for Haiti assignment). Salary $7,300 per annum plus tax reimbursement; travel, installation and subsistence allowances, field equipment, education and dependent grants.

World Health Organization, 1501 New Hampshire Avenue, N.W., Washington 6, D. C.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Public health physician; direct district of 100,000; minimum $12,000, maintenance; Midwest. (b) Medical director, industrial health council; woman physician eligible; medical center, South. (c) Director school health; city-county health department; $12,000; resort town, North. (d) Public health supervising nurse; qualified direct bedside care program and coordinate work of private agency; large city, educational center, Midwest. (e) Public health nurse director; visiting nurse association serving semirural area with generalized public health nursing program; short distance New York City. (f) Public health nurse for faculty appointment; state college; coastal city, South; $5,000–$6,200. (g) Assistant professor, department of health education, university appointment; East. (h) Health educator; outside Continental United States. (i) Public health nursing supervisors; $5,000–$6,000; Alaska. (j) Social and health directors; 450-bed general hospital; educational center, Midwest. (k) Sanitary engineer to supervise program, large county health department; $8,000; East. Burneice Larson, Medical Bureau, Palmolive Building, Chicago, Ill.

OPPORTUNITIES WANTED

WANTED—Opportunities for group of well qualified public health physicians, public health nurses, health educators, statisticians, sanitary engineers, and laboratory workers. Candidates available for administrative, academic and staff appointments. All negotiations strictly confidential. Please outline your requirements and credentials of qualified candidates will follow. Burneice Larson, Medical Bureau, Palmolive Building, Chicago, Ill.

News from the Field

PHS TECHNICAL REPORT ON POLIOMYELITIS VACCINE

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, sent to the Secretary of Health, Education, and Welfare on June 10, a Technical Report on the Salk Poliomyelitis Vaccine. The Surgeon General points out that a complete review of the subject is warranted because the events of the preceding months have occurred with such speed that it has been impossible to present a cohesive account from day to day of such a complex problem. The widespread professional and public interest in the vaccine also warrants a review to achieve thorough understanding. The report therefore attempts to provide such a review, recording the events and experiences on which the actions of the PHS have been based and outlining plans for the future with respect to this vaccine as one of the biologic products for which the PHS has certain responsibilities. Dr. Scheele concludes "we have every belief that this vaccine will fulfill its bright promise as a major advance in the prevention and control of a disease that has shadowed the lives of children and young adults for many generations."

The report is a detailed one, consisting of 93 pages, plus an additional 70 pages in the six appendices. It is made up of four parts, the first a chronological story of developments to May 31, 1955; the second, chapters on technical problems of safety in the production of Salk vaccine; the third, epidemiological aspects; and the fourth, new developments in biologics, relating the action of the Public Health Service.

The report includes a five-page summary reviewing the technical problems involved in the production, testing, and safety of poliomyelitis vaccine. It points out that the vaccine as prepared for the 1954 field trial was an experimental product made by commercial producers for the National Foundation for Infantile Paralysis. After some initial difficulty, the industrial firms were able to turn out a good product, and a field trial was carried out successfully. Vaccine production for the field trial permitted the laboratories of industry and the PHS to acquire experience in testing. When the success of the field trial was reported on April 12, 1955, official minimum requirements for the vaccine were issued by the PHS, and six manufacturers, each of which had produced vaccine under the provisional requirements, were granted licenses.

Most biologic products for commercial distribution are released on the basis of examination of the detailed record of events in manufacture and testing, with or without further testing by the Laboratory of Biologics Control, PHS. Release of most of the lots of polio vaccine was based on review of the manufacturing protocols. Tissue culture tests for the presence of live virus were completed prior to release by the Laboratory of Biologics Control on about half of these lots and monkey tests were completed on six lots, involving at least one lot from each of five manufacturers.

On April 26, 1955, six cases of poliomyelitis were reported among children who had received vaccine manufactured by the Cutter Laboratories. The investigation of the Cutter Laboratories which ensued was later extended to the entire industry and led to a temporary suspension of the vaccination program. PHS

on April 28 established a polio surveillance unit within its Communicable Disease Center in Atlanta, Ga., which is investigating all reported cases of polio, whether or not associated with vaccine. Sixteen virus laboratories throughout the nation are cooperating in examining and reporting upon specimens collected from cases and suspected cases. "The epidemiological data so far obtained clearly define the Cutter incident as an outbreak with characteristics of a common source epidemic. The cases of polio following use of vaccines made by the other manufacturers have not been more numerous than would be expected at this season except for a few cases which suggested (but were too few to be conclusive) an association with one lot of vaccine produced by Wyeth."

The Salk vaccine is a suspension of polio virus inactivated by formaldehyde to render the virus harmless but still capable of inducing the production of antibodies. The vaccine contains inactivated virus of each of the three types. The original concept of vaccine preparation was that the process itself assured a wide margin of safety. Safety tests for the vaccine were conceived to detect both mass contamination resulting from accidents in manufacture, and residual live virus which the process was intended to eliminate.

"The intensive investigations of the past five weeks indicate that the records which manufacturers were required to submit did not include certain data which are essential for an adequate assessment of consistency in performance. The protocols submitted related only to lots of vaccine proposed for clearance, and gave no information concerning lots discarded in the course of manufacture. Further, the information requested did not bring out certain data on processing and testing now known to be important.

"The total experience of the manufacturers now reveals that the process of inactivation did not always follow the predicted course, since positive tissue culture tests not infrequently occurred after the expected completion of the inactivation process. Greater dependence, therefore, must be placed on sensitive tests for very small quantities of residual live virus as part of process control than would otherwise be the case.

"Two types of test are used to determine the presence or absence of live virus in the vaccine; the monkey test and the tissue culture test. The tissue culture test has been found to be more sensitive than the monkey test. It must be performed with a large enough sample of vaccine and under closely controlled conditions if it is to have maximum value. The theoretical considerations which govern inactivation and testing have been analyzed in the light of information developed during this inquiry.

"As a result of the inquiry and of analysis of the manufacturers' experience and records, changes were made in processing control and safety testing. Revised requirements in the testing procedures were established, and the release of vaccine was resumed. The modifications provide greater assurance of safety. As a result of the review and the institution of revised requirements, the production and availability of vaccine has been delayed.

"The Salk vaccine applies new practices in the production of viral vaccines. The vaccine has progressed from the experimental level to large-scale production with unprecedented rapidity. This speed, reflecting the increased tempo of all medical research, created problems in biologics control amenable to solution only with the accumulation of knowledge and experience. It is likely that other problems of equal complexity will be raised by the development of other new viral vaccines. Action taken by the Public Health Service to deal with both

the current and the long-range problems include:

"1. Amendment of Minimum Requirements for the production and testing of poliomyelitis vaccine.

"2. Incorporation of Minimum Requirements in official regulations as mandatory standards.

"3. Creation of a Technical Committee on Poliomyelitis Vaccine.

"4. Creation of a Division of Biologics Standards, with strengthened staff and facilities.

"5. Increased on-site plant surveillance and consultation.

"6. Reoriented testing and research program.

"7. Establishment of a Poliomyelitis Surveillance Unit.

"8. Review of legislative authority."

USE OF POLIO VACCINE DURING EPIDEMIC SEASON

At a conference in New York called on June 18 by the National Foundation for Infantile Paralysis, Inc., there was formulated a statement bearing on the use of Salk polio vaccine during the prevalence of poliomyelitis. Persons were invited by the National Foundation on nomination of several professional groups, including the Academy of General Practice, American Academy of Pediatrics, American Medical Association, American Public Health Association, Association of State and Territorial Health Officers, U. S. Public Health Service, and the Vaccine Advisory Committee, NFIP. Persons representing the American Public Health Association included Herman E. Hilleboe, M.D., President, and Commissioner of Health of the New York State Department of Health, Albany, and L. J. Peterson, M.S.P.H., Administrative Director, Idaho State Department of Public Health, Boise.

The group reached conclusions during the meeting which it summarized as follows:

The following are some general statements unanimously agreed upon by the members of the committee to serve as guides to physicians and health officials to assist them in advising patients and the public:

The question of the possible provoking effect of Salk vaccine, when used extensively during epidemic periods, must be considered in an entirely different light from the possible provoking effect of those injectable materials which do not produce an immune response against poliomyelitis infection itself.

First of all, poliomyelitis vaccine has been shown to reduce greatly the incidence of paralytic poliomyelitis, and particularly the incidence of severe and fatal cases. Secondly, the vaccine is expected to produce some antibody as early as a week to ten days following the first shot, and even small amounts of antibody may be expected to have some effect in preventing paralytic poliomyelitis after this time. For this reason, the onset of an antibody response to the vaccine may eliminate any subsequent provoking effect of the vaccine injection.

It is the practice to advise that injections against the common infectious diseases such as diphtheria, whooping cough and tetanus be postponed during periods of high poliomyelitis incidence unless the risk of the disease to be prevented by the injections is greater than the presumed risk of converting an asymptomatic poliomyelitis infection into a paralytic one, or of localizing the paralysis to the injected extremity by means of the injection.

The available evidence indicates that the risk of localizing the paralysis or of provoking a paralytic attack is small, and that the duration of such a possible effect is limited to about three weeks following an injection.

Evidence that injections other than poliomyelitis immunizations increase the risk of acquiring paralytic poliomyelitis in injected individuals during epidemic periods has been scanty, although the effect of localization of paralysis to the injected extremity has been clearly shown.

When one considers the evidence for a provoking effect of injections during a severe epidemic, one is impressed by the fact that

in the epidemic in the Sioux City, Iowa, area at the time of the 1952 gamma globulin field trials, where attack rates in the susceptible age groups were extraordinarily high at the time of the injections, no significant provoking effect of the gelatin injections could be demonstrated, in comparison with the uninjected children of the same age groups. The much lower incidence of poliomyelitis in the group receiving injections of gamma globulin was also noteworthy.

Experimental evidence in monkeys has shown that the provoking effect of injections is greater when relatively unrefined materials are injected rather than a simple salt solution. In view of the fact that the poliomyelitis vaccine is largely a balanced salt solution with only traces of formalin-treated protein, it is necessary to examine the available evidence on the possible provoking effect of the vaccine.

In Southern states in 1954 at the time of the field trial of poliomyelitis vaccine, cases of poliomyelitis were already occurring, undoubtedly with associated asymptomatic infections, without evidence of a provoking effect of the vaccine. In 1955 in fourteen Southern states during the eight-week period following April 16, some 2,300,000 injections with the Salk vaccine did not show evidence of a significant provoking effect.

It must be emphasized that when poliomyelitis vaccine is given to large numbers of individuals during epidemic periods, a small proportion receiving the vaccine will subsequently experience paralytic disease. This is because the vaccine is not 100 per cent effective; individuals receiving it during the early silent period of an infection may not be protected, but may be subject to a localizing effect of paralysis at the site of injection; and a certain number of cases erroneously reported as poliomyelitis will actually be instances of other diseases with clinical similarities.

It should also be emphasized that the small risk of the provoking effect of injections can probably be reduced still further by the avoidance of any such injections in individuals while they are exhibiting symptoms of minor illness, especially fever, sore throat, or gastrointestinal upsets.

The vaccine, moreover, should not be given to individuals in a household where a case of poliomyelitis has just occurred. Since almost all of the other members of the household are already infected when the case is identified, such an injection at this time may provoke paralysis.

In summary, those present at the meeting agreed that the total preventive effect of the vaccine in a period of rising poliomyelitis incidence should be much greater than the possible hazard from the provoking effect of the injection. Those present also concluded that the benefit to be gained by poliomyelitis immunization, in contrast to the small potential risk of provocation, increases in proportion to the severity of the poliomyelitis incidence, since a larger number of paralytic cases should be prevented during the entire period of the epidemic.

Therefore, the slight hazard of provocation is insufficient to limit the injection of poliomyelitis vaccine even in the presence of a rising incidence of poliomyelitis in the community.

New York Academy of Preventive Medicine

The New York State Academy of Preventive Medicine was organized in Buffalo, May, 1955, when by-laws were adopted and the following officers elected:

President—V. A. Van Volkenburgh
President-Elect—Franklin M. Foote
Vice-President—Morton L. Levin
Secretary-Treasurer—Walter C. Levy
Directors—Joseph H. Kinnaman, 3-year term
Michael Antell, 2-year term
Milton Tully, 1-year term
Representative to Board of Regents, American Academy of Preventive Medicine—V. A. Van Volkenburgh

Membership is limited to physicians who are diplomates of the American Board of Preventive Medicine, residing or employed in New York State. Qualified applicants are eligible for charter membership by application until December 31, 1955, after which membership is by election. Of the approximately 165 diplomates of the American Board of Preventive Medicine in New York State, 113 have charter membership in the New York State Academy of Preventive Medicine. Application forms for charter membership may be obtained from Dr. Walter C. Levy, secretary-treasurer, New York State Academy of Preventive Medicine, 353 Broadway, Albany, N. Y.

Suggested Model Poultry Ordinance

With publication of "Poultry Ordinance—1955 Edition," the U. S. Public Health Service hopes to foster uniformly good sanitary practices in poultry processing plants. Although inspection by the Food and Drug Administration assures supervision of poultry products in interstate commerce, "the greater part of poultry and poultry products do not cross state lines" and so are not subject to this inspection. The ordinance has been prepared for state or local adoption.

A public health-industry committee assisted in the preparation of the ordinance. Copies available from the Service in Washington and in the regional offices, and the Institute of American Poultry Industries, Chicago.

Schools of Public Health Elect

At the recent meeting of the Association of Schools of Public Health at the University of Minnesota, the following officers were elected:

President—Charles E. Smith, M.D., dean, School of Public Health, University of California, Berkeley

Vice-President—E. L. Stebbins, M.D., dean, Johns Hopkins School of Hygiene and Public Health, Baltimore

Secretary-Treasurer—James A. Crabtree, M.D., professor of public health practice, University of Pittsburgh Graduate School of Public Health (re-elected).

Simplifying Work in the Home

The Washington State Heart Association and the University of Washington School of Medicine cooperated in a two-day conference in June on "Work Simplification in the Home." The conference was designed primarily for nurses, teachers, rehabilitation workers, physical and occupational therapists, and others working with clients, particularly the handicapped. Emphasis was on the application of work simplification principles in order to have more leisure, less fatigue, and better health for both the normal and the handicapped.

Catherine Vavra, professor of health education at the School of Medicine, was in charge of arrangements. Findings of the conference should be requested from her. 318 Administration Bldg., University of Washington, Seattle 5, Wash.

Kentucky's County Health Departments

Woodford County is the last of 120 counties in Kentucky state to provide for a full-time health department. Its Fiscal Court in April declared the county to be a district for the creation, establishment, and maintenance of a full-time county health department. This action came just 47 years after the first county health department was established in Jefferson County in 1908. Although the state has 120 county health departments, the currently shared responsibilities provide for only 79 health officers. Of these positions, 20 are filled by health administrators and 23 are vacant without either health officers or health administrators.

Rheumatic Fever Reading for Laymen

The Helen Hay Whitney Foundation has prepared a list of publications on rheumatic fever for lay persons. The list, requested by professional workers, came about as a by-product of compiling bibliographies on various aspects of rheumatic fever. Although incomplete and without review of material, it is issued as a help to physicians—and presumably health workers—in selecting available literature for their rheumatic fever families. It is also hoped that its use may develop a more extensive list. Helen Hay Whitney Foundation, 525 E. 68th St., New York 21. Free.

Tuberculosis Morbidity

The Public Health Service has published its second annual summary of tuberculosis morbidity. This is based on data reported to the Service on an annual Tuberculosis Report Form by each state. There was a slight decline both in number and rate per 100,000 population of new cases between 1952 and 1953. During the same year there was a 20 per cent decline in tuberculosis mortality. Reported Tuberculosis Morbidity and Other Data, Calendar Year 1953, U. S. Gov. Ptg. Office, Washington 25, D. C., 25 cents.

Unified Child Health Program

By act of the state Legislature, the Brookline (Mass.) School Committee is authorized to appoint the city's director of health as the director of school health services. By this arrangement, the director of health, Robert H. Hamlin, M.D., states that a more extended program for all children will be offered. Heretofore, the School Committee has been responsible for health services in public schools, the Health Department for those in parochial schools, and both the Health Department and the Brookline Friendly Society for services to preschool children.

School of Public Health at Beirut

The American University of Beirut has established a School of Public Health which accepted the first postgraduate students in October, 1954. The school has been established in the Faculty of Medical Sciences, which includes the Schools of Medicine, Pharmacy, and Nursing. There are two Departments, that of Public Health and Preventive Medicine and that of Technical Training. A Diploma in Public Health is offered to physicians, engineers, hospital administrators, educators, and statisticians. The undergraduate teaching of preventive medicine in medicine, pharmacy, and nursing is also conducted in the school.

Among those with American degrees on the staff are Leland E. Powers, M.D., chairman, Richard F. Clapp, M.P.H., William A. Darity, M.S.P.H., G. A. Garabedian, Ph.D., Eugene A. Gillis, M.D., Amy Whitney Greene, Hilda G. Hakim, Elizabeth R. Johnston, M.S., John B. Joseph, M.P.H., Mary L. Mills, M.A., Charles A. Morese, Jr., M.S., Helen Papken Mugrditchian, Gilbert C. Neu, M.A., G. Spencer Reeves, M.P.H., Zekin Andrawus Shakhashiri, M.D., Joseph A. Staton, M.P.H., and A. Edward Williamson, Jr., B.S.M.E.

WHO News

Eighth World Health Assembly

New Officers—The Eighth World Health Assembly met in Mexico City, May 10–27, the first meeting in the Americas. The outgoing president, Dr. Joseph N. Togba of Liberia, and the president of Mexico, Adolf Ruiz Cortinez, opened the sessions. Mexico's minister of health and welfare, Dr. Ignacio Morones Prieto, was elected president for the coming year. Other officers elected are:

Vice-Presidents—Dr. S. Elwahbi, Iraq
Dr. J. Gratzer, Austria
Sir Arcot Mudaliar, India
Chairman, Program and Budget Committee—Professor G. A. Canaperia, Italy
Chairman, Committee on Administration, Finance, and Legal Matters—Dr. P. E. Moore, Canada

Six countries—Argentina, Ecuador, Finland, Pakistan, Philippines, and Portugal—were elected to designate members of the Executive Board for three-year terms, succeeding representatives of Brazil, Canada, Denmark, Iran, New Zealand, and United Kingdom.

Dr. Candau Summarizes Sixth Year—Dr. M. G. Candau, director-general of WHO, presented a 200-page 1954 annual

report to the Assembly, the legislative body of WHO. He reports that in its sixth year of existence, WHO participated in 329 major health projects in 75 countries. Almost 40 per cent of these projects were training programs designed to meet the critical shortage of health personnel. Since the beginning of the program more than 4,500 fellowships have been awarded. The need for more trained personnel is one of the recurring themes of Dr. Candau's report.

Another recurring theme is the basic importance of environmental sanitation. WHO is preparing manuals on sanitation problems such as rural water supply and disposal of excreta, and refuse disposal particularly in relation to production and use of compost.

The organization is continuing its essential aim of strengthening the permanent structure of public health services in its member states. Dr. Candau reported as "the most encouraging aspect" of the requests from member states was the fact that there was a marked increase in requests for help in working out long-term plans. He was also encouraged by "the growing attachment of member states to the idea of international cooperation," and their readiness to undertake joint action in solving problems common to more than one country.

Finally, Dr. Candau suggested that WHO must "assume responsibility for assessing the possible effects on health of the unprecedented interference with natural processes now occurring over large areas of the world"—the wholesale destruction of insects, the use of antibiotics, use of atomic energy, among others. How will disease patterns be affected by efforts to raise standards of environmental sanitation and of general hygiene?

(The report of the director-general is reviewed in the April, 1955, Chronicle of the World Health Organization, Vol. 9, No. 4.)

Leon Bernard Prize to Dr. Stampar—The Leon Bernard Foundation Prize and Medal, including 1,000 Swiss francs, was awarded to Dr. Andrija Stampar, president of the Yugoslav Academy of Arts and Sciences, "In recognition of his outstanding contribution and practical achievements in the field of social medicine," said the citation in part. He has "introduced the basic concepts of social medicine in the medical schools and health services of Yugoslavia . . . and promoted the study of socio-economic problems as a background to the improvement of world health."

The Bernard Prize was first established in 1934 by the Health Committee of the League of Nations through international subscription. It honored Leon Bernard of France, whose "studies on the clinical and therapeutic aspects of tuberculosis, and on casefinding and prevention . . . have . . . become classics." In the League of Nations he was a proponent of "modern methods of teaching medicine, of health protection, and of social progress."

Other winners of the award have included one scientist each from Belgium, Denmark, and France and two from the United States, W. A. Sawyer, M.D., and C.-E. A. Winslow, Dr.P.H.

Budget—A working 1956 budget for regular activities of $9,612,000 was adopted, only slightly larger than the 1955 budget. In addition, $309,000 was allocated for the special program to eradicate malaria, $240,000 for salaries in joint WHO-UNICEF projects, and $42,000 for exploring peace-time uses of atomic energy. It is expected that about $4,000,000 will be available through Technical Assistance.

Atomic Energy a WHO Challenge

The first international conference on the peaceful uses of atomic energy will be held by the United Nations in Geneva in August. At this meeting WHO will

be concerned chiefly with medical and health aspects.

At the recent Eighth World Health Assembly in Mexico City, the director-general, Dr. Candau, indicated his belief that atomic energy presented a challenge to WHO. This meeting gave priority to the protection of populations from the hazards of atomic radiation. Exploration of the potential uses of radioactive isotopes in medicine and public health was considered second in importance.

A preliminary conference of four atomic scientists under the leadership of John Bugher, M.D., met in Geneva in December to plan for the August meeting and to advise Dr. Candau on the fields in which WHO should set up a program.

PERSONALS

DEWITT S. ABELL, M.S.S.E.,* former Jamestown district engineer, New York State Department of Health, is now chief, Environmental Health Division, Butler County (Pa.) Health Department.

EARL J. ANDERSON succeeded JOHN A. BELLIZIA as chief, Home Accident Prevention Project, Massachusetts State Department of Public Health. Mr. Bellizia is in Pakistan with the Foreign Operations Administration.

MABEL BAIRD,† executive director, Connecticut Tuberculosis Association, Hartford, was recently honored at a dinner given by the faculty of the Yale University Department of Public Health in recognition of her more than 40 years of service in the state's tuberculosis program.

JOHN E. BAKER, JR., M.P.H.,* former chief, Health Education Section, North Carolina State Board of Health, has succeeded MALCOLM MASON, M.P.H.,† as health education specialist to the Surgeon General, United States Air Force, Washington, D. C. Mr. Baker in turn has been succeeded by LULA BELLE H. RICH, M.S.P.H.†

GEORGE W. BROOKS,† former executive director of Rest Haven, a specialized rehabilitation hospital in Chicago, has been appointed assistant director, Beth Israel Hospital, Boston, Mass.

ELIZABETH BROWN, former director of welfare in the United States Zone of Germany, International Refugee Organization, is now field service consultant, Committee on Careers, National League for Nursing, New York City.

PAUL H. BROWN, M.D., Dr.P.H.,* former health officer of Stamford, Conn., has been appointed health officer of the Island of Hawaii, Department of Health, Territory of Hawaii.

EDWARD B. BUKOWSKI, M.D.,† has been appointed commissioner of health, Buffalo-Erie County Department of Health, succeeding BERWYN F. MATTISON, M.D.,* who resigned to become secretary of health, Commonwealth of Pennsylvania, Harrisburg.

ROBERT CONARD, M.D., has succeeded the late HENRY M. BROWN, M.D., as health commissioner of Clinton County, Wilmington, Ohio.

ELIZABETH CORNFIELD, M.D.,† is now research assistant, Connecticut Commission on Care of Chronically Ill.

GILBERT DALLDORF, M.D.,* director, Division of Laboratories and Research, New York State Department of Health, Albany, has been elected a member of the National Academy of Sciences.

PHILIP R. EDWARDS, Ph.D.,† and DR. GEORGE W. PEARCE of the Public Health Service's Communicable Disease Center, Atlanta, Ga., and ALBERT F. SIEPERT, executive officer, National Institutes of Health, Bethesda, Md., were given Distinguished Service Awards by Oveta Culp Hobby, secretary of health, education, and welfare, at the recent second birthday of the department's cabinet rank.

ROBERT H. FLINN, M.D.,* former adviser on civil defense matters to the Surgeon General, Public Health Service, is on a two-year detail as chief, Division of Health, Bureau of Mines, U. S. Department of the Interior, Washington, D. C.

PHOEBE HARRISON GOFF,† associate, Rehabilitation Division, National Tuberculosis Association, has resigned to continue her studies toward a doctorate in vocational rehabilitation at New York University and has been succeeded by GARDNER F. COOK, formerly associate professor of social work, New York School of Social Work.

MURRAY GRANT, M.D.,† former commissioner of health, Cattaraugus County, N. Y., is now commissioner of health, Clay County, Liberty, Mo. JULIUS S. PRINCE, M.D.,† New York State Department district health officer in the Jamestown District, has been appointed acting health commissioner for Cattaraugus County.

NORA S. HAMNER, R.N.,† executive secretary,

* Fellow.
† Member.

Richmond Tuberculosis Association, was given the annual Douglas Southall Freeman Award by the Virginia Tuberculosis Association for outstanding contributions to tuberculosis control in the state at the recent VTA annual meeting.

F. J. HILL, M.D., M.P.H.,† former director, Gadsden-Liberty Counties (Fla.) Health Department, has resigned to become health officer of Monroe County in the same state, with headquarters in Key West.

THEODORE H. INGALLS, M.D.,* associate professor of epidemiology, the Harvard School of Public Health, Boston, Mass., was awarded an honorary degree of doctor of science at the recent 145th Commencement of Hamilton College.

A. CHAPMAN ISHAM, M.D., psychiatrist, Mental Health Clinic, Cattaraugus County Health Department, N. Y., has resigned.

DONALD C. KALDA, former Sioux Falls district sanitary engineer, has been transferred to the Sanitary Engineering Division. South Dakota State Department of Health, as chief, Sewage Section, succeeding the late R. J. STAPF.

ROBERT F. KORNS, M.D.,* former director, Bureau of Epidemiology and Communicable Disease Control and for the past year on leave as deputy director of the Poliomyelitis Vaccine Evaluation Program at Ann Arbor, Mich., has been promoted to assistant commissioner for program development and evaluation, New York State Health Department, Albany.

PAUL A. LINDQUIST, M.D.,* recently returned from a Public Health Service assignment in Greece, Libya, and Germany, and former director, Kansas City-Wyandotte County Health Department, has been appointed, medical officer, Region VI of the Federal Civil Defense Administration's five-state area with headquarters in Denver.

ELEANOR D. MARSHALL, former administrative assistant, Research and Statistics, has been appointed assistant executive secretary, Research and Statistics Unit, American Nurses' Association, succeeding ROBERTA SPOHN.

EVERETT L. MAYNARD, former health agent, Holden, Mass., has been appointed assistant sanitation officer, Nashoba Boards of Health, Ayer.

LEONARD A. MAYNARD, Sc.D., Ph.D.,* director, School of Nutrition, Cornell University, has retired and has accepted the chairmanship of the National Research Council's Division of Biology and Agriculture.

LOUIS C. MCCABE, Ph.D., former chief, Fuels and Explosives Division, Bureau of Mines, Department of the Interior, has been called to active duty as a commissioned officer of the Public Health Service to serve as staff adviser on air pollution to Assistant Surgeon GENERAL MARK D. HOLLIS, C.E.,* chief sanitary engineer of the Service and chief of its Division of Sanitary Engineering Services.

WALSH MCDERMOTT, M.D., editor of the American Review of Tuberculosis, and medical director, National Tuberculosis Association, has been appointed professor of public health and preventive medicine, Cornell University Medical College, N. Y., effective July 1, where he will succeed WILSON G. SMILLIE, M.D., Dr.P.H.,* retired. The chair has been named in honor of LIVINGSTON FARRAND, M.D., former president of Cornell University and formerly editor of the American Journal of Public Health.

HENRY G. MELLO, M.D.,* health officer, Vallejo-Solano County (Calif.) Health Department, was recently commended by the County Board of Supervisors for outstanding services to the citizens through the public health services of the department. He has also been elected secretary-treasurer of the new Solano County Chapter, American Academy of General Practice.

MARY MOSSMAN, M.S.,† is now a health educator, Massachusetts Division, American Cancer Society, working out of the Boston office.

HAYDEN C. NICHOLSON, M.D., dean, University of Arkansas Medical School, Little Rock, has resigned to become executive director of the Hospital Council of Greater New York, succeeding ANTHONY J. ROURKE, M.D.,* resigned.

FREDERIC W. NORDSIEK,* who has been assistant secretary, Research Committee, American Cancer Society, New York City, has now been appointed executive officer of the Research Department, American Cancer Society.

JOSEPH P. PETERS,* deputy administrator for the past two years, Beekman-Downtown Hospital, New York City, has been appointed administrator, succeeding MABEL DAVIES, R.N., retired after 28 years of service.

LOUIS S. REED, Ph.D.,* is on leave from the Division of Hospital Facilities, Public Health Service, to serve as director of research for the Subcommittee on Welfare and Pension Funds of the Senate Committee on Labor and Public Welfare, whose chairman is Senator Paul H. Douglas of Illinois.

ROBERT E. ROTHERMEL, M.D.,* former health

* Fellow.
† Member.

officer, Pinellas County, Fla., is now assistant director, Community Service and Education, American Heart Association, New York City.

M. MICHAEL SIGEL, Ph.D.,* former chief, Reference Diagnosis and Research Unit, Virus and Rickettsia Section, Communicable Disease Center of the Public Health Service, Montgomery, Ala., is now associate professor, Department of Bacteriology, University of Miami School of Medicine, Coral Gables, Fla.

J. G. SMITH, M.D.,* formerly deputy director, has been appointed director, Cleveland (Ohio) Health Department, succeeding the late HAROLD KNAPP, M.D.

JAMES H. STERNER, M.D.,* medical director, Eastman Kodak Company, Rochester, N. Y., received the Cummings Memorial Award of the American Industrial Hygiene Association at a dinner of the association in Buffalo in April.

MARY E. WATTS has been appointed chief of Public Health Social Service, a newly created department in the Pittsburgh (Pa.) Department of Public Health.

HARRY M. WEAVER, Ph.D.,† formerly research director, National Foundation for Infantile Paralysis and later research consultant of the American Cancer Society, is now administrator for research, American Cancer Society, New York City.

ARTHUR E. WILLIAMSON, former director of municipal engineering, North Dakota State Department of Health, is now director of environmental sanitation, Wyoming State Department of Health, Cheyenne.

LOUIS D. ZEIDBERG, M.D., M.P.H.,* former director, Williamson County (Tenn.) Tuberculosis Study, Tennessee State Health Department, has been appointed associate professor of epidemiology, Department of Preventive Medicine and Public Health, Vanderbilt University School of Medicine, Nashville.

DEATHS

WALTER B. CARTER,† statistician, Washington, D. C. (Statistics Section).

RICHARD N. CONNOLLY, M.D.,* of Newark, N. J., who first joined the Association in 1898. He was a charter Fellow of the Laboratory Section and received a 40-year membership certificate in 1938. Word has just been received of his death on March 25, 1953 (Laboratory Section).

DAVID D. HELM, V.D.M.,† health officer and registrar of vital statistics, Camden (N.J.) Health Department (Health Officers Section).

GORDON W. MOLYNEUX,* senior sanitarian, New York State Department of Health, Albany (Engineering Section).

RALPH NORTON, JR.,† executive secretary, Nassau County Medical Society, Mineola, N. Y. (Unaffiliated).

* Fellow.
† Member.

CONFERENCES AND DATES

American Public Health Association, 83rd Annual Meeting. Kansas City, Mo., November 14–18, and Related Organizations, including:

American School Health Association
Business Management in Public Health, Association of
Cleveland Health Museum, National Advisory Council of the
Commissioned Officers Association of the United States Public Health Service
Health Authorities of North America, Conference of State and Provincial
Hospital Consultants, American Association of
International Health, Division of, Public Health Service
Labor-Management Medical Care Administrators
Maternal and Child Health and Crippled Children's Directors, Association of
Military Government—Civil Affairs Public Health Society
National Sanitation Foundation
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Preventive Medicine, Association of Teachers of
Public Health Cancer Association
Public Health Engineers, Conference of Municipal
Public Health Laboratory Directors, Conference of State and Provincial
Public Health Nutrition Directors, Association of State and Territorial
Public Health Veterinarians, Conference of
Reserve Officers Association of the United States Public Health Service
Schools of Public Health, Association of
World Health Organization, National Citizens Committee for the

State and Regional Public Health Meetings:

Minnesota Public Health Association. Hotel Nicollet, Minneapolis, Minn. September 29–30.

New England Health Institute. Colby College, Waverville, Me. August 30–September 1.

North Carolina Public Health Association. Robert E. Lee Hotel, Winston-Salem, N. C. September 22–24.

Ohio Public Health Association. Deshler Hilton Hotel, Columbus, Ohio. September 12–14.

Pennsylvania Public Health Association. Pennsylvania State University, State College, Pa. August 15–18.

South Dakota Public Health Association. Marvin Hughitt Hotel, Huron, S. D. September 28–30.

Washington Public Health Association. Davenport Hotel, Spokane, Wash. September 12–13.

West Virginia Public Health Association. Daniel Boone Hotel, Charleston, W. Va. September 8–9.

Meetings of Other Organizations Coming in July, August, and September:

Adirondack Workshop (Community Chest and Councils of America) "Communications in Social Welfare." Silver Bay, Lake George, N. Y. July 7–12.

American Chemical Society. Minneapolis, Minn. September 11–16.

American Hospital Association. Atlantic City, N. J. September 19–22.

American Psychological Association. San Francisco, Calif. September 2–7.

American Veterinary Medical Association. Minneapolis, Minn. August 15–18.

Canadian Public Health Association. Macdonald Hotel, Edmonton, Alberta, Canada. September 6–8.

Federation of Sewage and Industrial Wastes Associations. Atlantic City, N. J. October 10–13.

National Association of Sanitarians. Sheraton Plaza Hotel, Boston, Mass. August 22–25.

National Council on Family Relations. Minneapolis, Minn. August 23–26.

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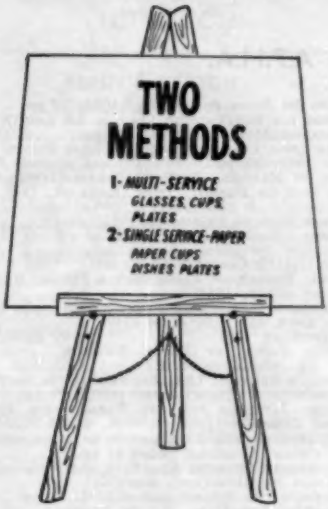

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HEINICKE INSTRUMENTS, Hollywood, Fla., Booth 174.

HOBART MANUFACTURING CO., Troy, Ohio, Booth 237.

DIRECTORY OF EXHIBITS (cont.)

83rd Annual Meeting, American Public Health Association

November 14–18, 1955

Municipal Auditorium, Kansas City, Mo.

INTERNATIONAL CELLUCOTTON PRODUCTS CO., Chicago, Ill., Booth 172.

KEWAUNEE MANUFACTURING CO., Adrian, Mich., Booths 194 and 195.

KIMBLE GLASS COMPANY, Toledo, Ohio, Booth 178.

LICENSED BEVERAGE INDUSTRIES, INC., New York, N. Y., Booth 168.

LIFE AND HEALTH, Washington, D. C., Booth 171.

ELI LILLY AND CO., Indianapolis, Ind., Booth 216.

LILY-TULIP CUP CORP., New York, N. Y., Booth 208.

THE LORVIC CORP., KARIDIUM DIV., St. Louis, Mo., Booth 215.

M & R LABORATORIES, SIMILAC DIV., Columbus, Ohio, Booth 231.

THE MACMILLAN CO., New York, N. Y., Booth 164.

MILLIPORE FILTER CORP., Watertown, Mass., Booth 192.

C. V. MOSBY CO., St. Louis, Mo. Booth 167.

NATIONAL DAIRY COUNCIL, Chicago, Ill., Booth 175.

NATIONAL LIVE STOCK & MEAT BOARD, Chicago, Ill., Booth 165.

OVAL WOOD DISH CORP., Tupper Lake, N. Y., Booth 226.

PARKE, DAVIS & CO., Detroit, Mich., Booth 204.

PEPPERIDGE FARM INC., Norwalk, Conn., Booth 239.

PEPSI-COLA CO., New York, N. Y., Booths 162 and 163.

PET MILK CO., St. Louis, Mo., Booth 183.

PRECISION SCIENTIFIC CO., Chicago, Ill., Booths 180 and 181.

PROCTOR AND GAMBLE CO., Cincinnati, Ohio, Booth 201.

PUBLIC HEALTH COMMITTEE OF THE PAPER CUP AND CONTAINER INSTITUTE, New York, N. Y., Booth 235.

W. B. SAUNDERS CO., Philadelphia, Pa., Booth 233.

SEALRIGHT CO., INC., Fulton, N. Y., Booths 206 and 209.

THE SEVEN-UP CO., St. Louis, Mo., Booth 244.

SONOTONE CORP., Elmsford, N. Y., Booth 207.

E. R. SQUIBB & SONS, DIVISION OF MATHIESON CHEMICAL CORP., New York, N. Y., Booths 210 and 211.

STERWIN CHEMICALS, INC., New York, N. Y., Booth 232.

TAMPAX, INC., New York, N. Y., Booth 242.

WALLACE & TIERNAN, INC., Belleville, N. J., Booth 170.

WYETH LABORATORIES, Philadelphia, Pa., Booth 199.

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